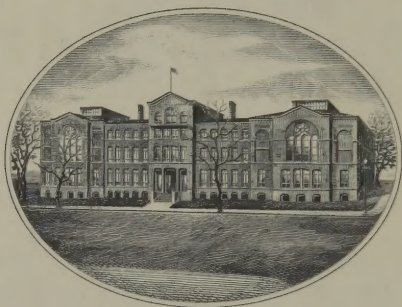
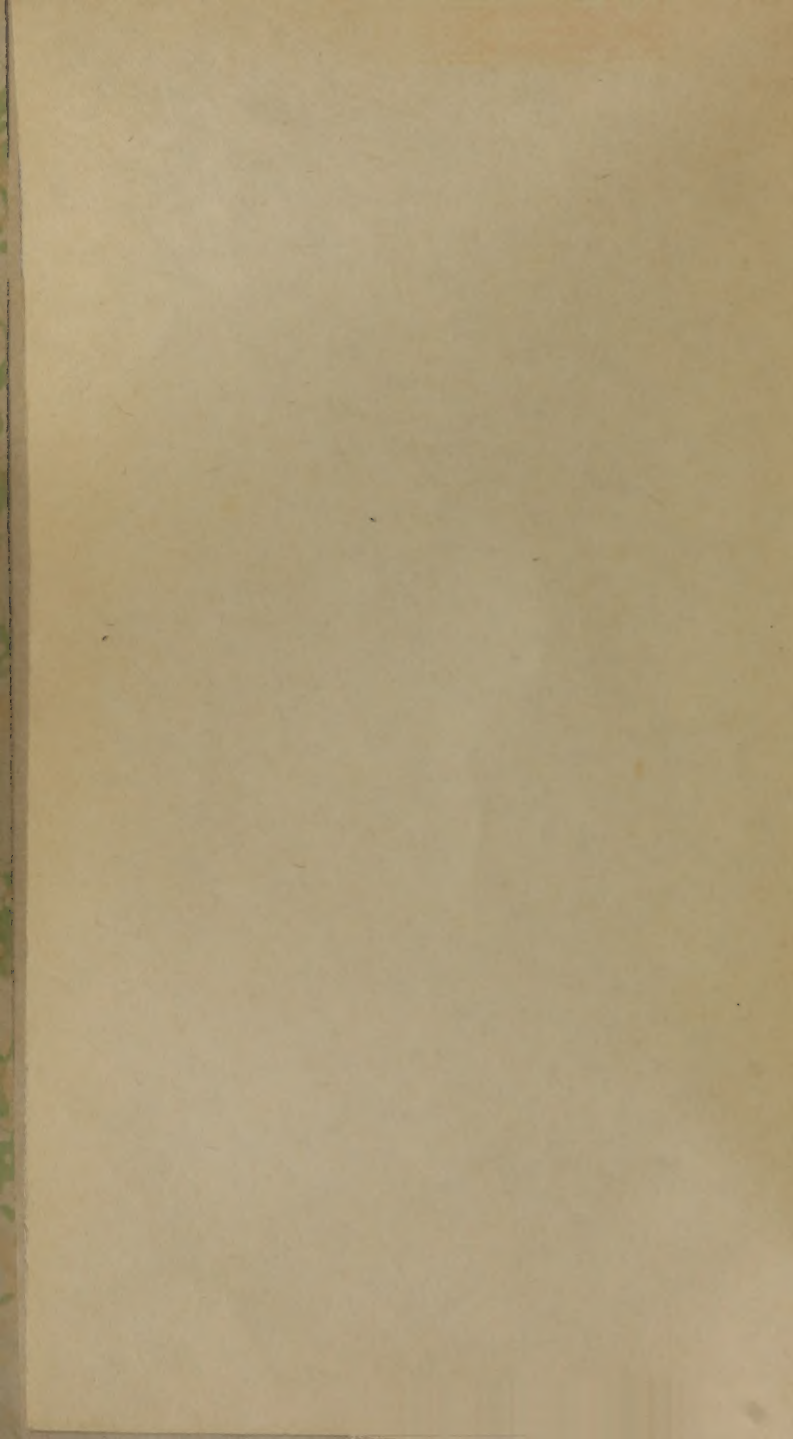


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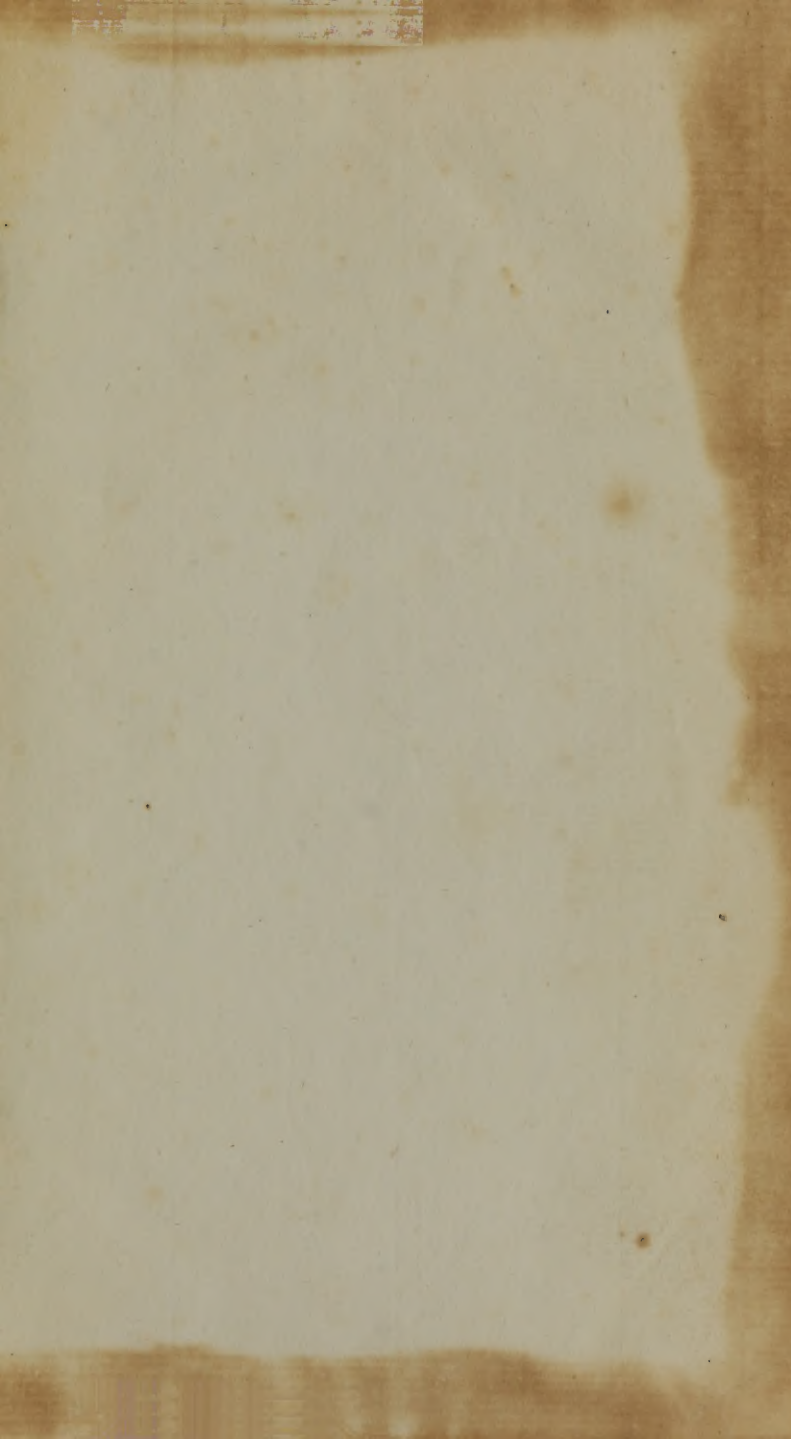


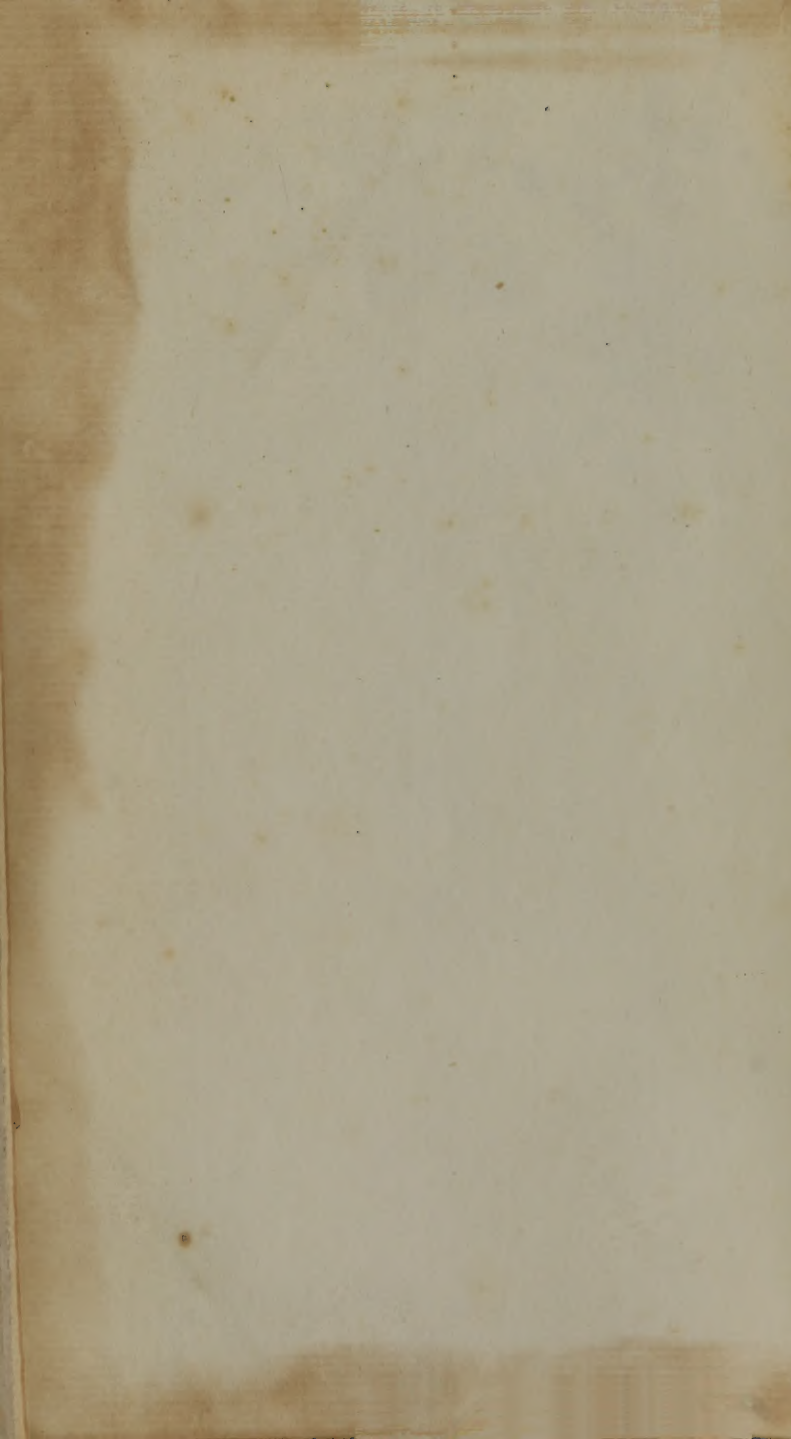
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Handwritten: 2nd ed. 1798
Handwritten: 1798
M E D I C A L

Inquiries and Observations:

CONTAINING

AN ACCOUNT

OF THE

YELLOW FEVER,

AS IT APPEARED IN PHILADELPHIA IN 1797,

AND

OBSERVATIONS

UPON THE

NATURE AND CURE

OF THE

Gout, and Hydrophobia.

BY BENJAMIN RUSH, M.D.

PROFESSOR OF MEDICINE IN THE UNIVERSITY
OF PENNSYLVANIA.

VOLUME V.

PHILADELPHIA:

PRINTED BY BUDD AND BARTRAM,

FOR THOMAS DOBSON, AT THE STONE HOUSE,
N^o 41, SOUTH SECOND STREET.

—1798.—

P R E F A C E.

AGREEABLY to my promise made in the year 1796, I herewith offer to the public a few observations upon the nature and cure of the gout. They are connected with a history of the yellow fever as it appeared in Philadelphia in 1797, and with some observations upon the nature and cure of the hydrophobia. I still hold myself bound by my promise at the time above alluded to, to publish the result of my inquiries into the diseases of the mind. The extent and difficulties of this interesting branch of medicine, will necessarily delay this publication for some time to come. In the mean while (health and life permitting) I shall spare no labour to render it as useful as possible.

In my attempts to explain the nature of the hydrophobia, I have affixed certain specific ideas to several medical terms which I had used in my former publications in the common and indefinite acceptation of authors. The reader will excuse this liberty, when he reflects, how much new opinions in other sciences, have been benefited by a new nomenclature. Medicine in its present improving state, must follow those sciences in adopting a new language, for REASON however impotent it may be for ages, in producing just effects in morals and government, is seldom resisted longer than a single generation, in the science which relates to health and life. I am the more confident of its influence in producing a speedy revolution in the use of medical terms, from having observed the principles which lead to it, adopted, not only by a number of respectable physicians in this city and in the neighbouring states, but by many ingenious gentlemen of other professions. “ ’Tis time to retire” said a British general in the year 1777, upon meeting an army of militia-men
upon

upon the heights of Saratoga. “ The owners of the foil have come forth.” In like manner, ’tis time for the imposing forms of ignorance and error in medicine to hide their heads. Unprejudiced men have come forth in defence of their own lives. Their efforts cannot fail of being successful, for they are actuated not only by the powerful motive of self-preservation, but they move by the light of reason, the advantages of which in medicine, compared with solitary and mechanical experience, are like the extensive benefits the science of navigation has derived from the loadstone, compared with the feeble aids it formerly derived from the sight of land, or the transient light of the stars.

BENJAMIN RUSH.

PHILADELPHIA, }
4th July, 1798. }

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AN
ACCOUNT
OF THE
BILIOUS, REMITTING, AND INTERMITTING
YELLOW FEVER,
AS IT APPEARED IN
PHILADELPHIA,
IN 1797.

AN
ACCOUNT, &c.

IN my account of the yellow fever, as it appeared in Philadelphia in the year 1794, I took notice of several cases of it which occurred in the spring of the year 1795. Before I proceed to deliver the history of this disease as it appeared in 1797, I shall mention the diseases and state of the weather which occurred during the remaining part of the year 1795, and the whole of the year 1796. This detail of facts, apparently uninteresting to the reader in the present state of our knowledge of epidemics, may possibly lead to principles at a future day.

The month of April 1795 was wet, and cold. All the diseases of this month partook of the inflammatory character of the preceding winter and

autumn, except the measles which were unusually mild.

The weather in May was alternately wet, cool, and warm. A few cases of malignant fever occurred this month, but with moderate symptoms. In June the weather was cool and pleasant. The measles put on more inflammatory symptoms than in the preceding months. I had two cases of mania under my care this month, and one of rheumatism, which were attended with intermissions and exacerbations every other day.

The weather on the 19th, 20th, 21st, and 22d days of July was very warm, the mercury being at 90° in Fahrenheit's thermometer. The fevers of this month were all accompanied with black discharges from the bowels. Mr. Kittera one of the representatives of Pennsylvania in the Congress of the United States, in consequence of great fatigue on a warm day, was affected with the usual symptoms of the yellow fever. During his illness he constantly complained of more pain in the left, than in the right side of his head. His pulse was more tense in his left, than in his right arm. During his convalescence, it was more quick in the left arm, than it was in the right. He was cured by a salivation and the loss of above 100 ounces of blood. His head-
ach

ach was relieved by the application of a bladder half filled with ice to his forehead.

Most of the cases of bilious fever which came under my notice, were attended with quotidian, tertian or quartan intermissions. In a few of my patients there was an universal rash.

Dr. Woodhouse informed me, that he had seen several instances in which the yellow fever had been taken from some soldiers who had laboured under the dysentery. These facts shew the unity of fever, and the impracticability of a nosological arrangement of diseases.

The cholera infantum was severe and fatal in many instances during this month. It yielded to bloodletting in a child of Mr. Conyngham which was but four months old. In a child of seven weeks old which came under my care, I observed the coldness, chills, hot fits, and remissions of the bilious fever to be as distinctly marked as ever I had seen them in adult patients. In a child of Mr. Darrach aged 5 months, the discharges from the bowels were of a black colour. I mention these facts in support of an opinion I formerly published, that the cholera infantum is a bilious fever, and

that

that it rises and falls in its violence with the bilious fever of grown persons.

About the latter end of this month and the beginning of August, there were heavy showers of rain which carried away fences, bridges, barns, mills and dwelling houses in many places. Several cases of bilious yellow fever occurred in the month of August. In one of them it was accompanied with that morbid affection in the wind-pipe which has been called *cynanche trachealis*. It was remarkable that sweating became a more frequent symptom of the fevers of this month than it had been in July. Hippocrates ascribes this change in the character of bilious fevers to rainy weather. Perhaps it was induced by the rain which fell in the beginning of the month, in the fevers which have been named.

On the 30th and 31st of August there was a fall of rain which suddenly checked the fever of the season, insomuch that the succeeding autumnal months were uncommonly healthy. Several showers of rain had nearly the same effect in New-York where this fever carried off in a few weeks above 700 persons. It prevailed at the same time, and with great mortality, in the city of Norfolk in Virginia.

In both those cities as well as in Philadelphia the disease was evidently derived from putrid exhalation.

In the same month, the dysentery prevailed in Newhaven in Connecticut, and in the same part of the town in which the yellow fever had prevailed the year before. The latter disease was said to have been imported, but the prevalence of the dysentery under the above circumstances, rendered it probable that both diseases were of domestic origin.

The fever as it appeared in Philadelphia yielded in most cases to depleting remedies. After purging and bloodletting, I gave bark where the fever intermitted, with advantage. It was effectual, only when given in large doses. In one instance it induced a spitting of blood which obliged me to lay it aside.

The winter of 1796 was uncommonly moderate. There fell a good deal of rain, but little snow. The navigation of the Delaware was stopped but two or three days during the whole season. Catarrhs were frequent, but very few violent or acute diseases occurred in my practice. The month of March and the first week in April were uncommonly dry. Several cases of malignant bilious fever came under my care during these months. In two families

families it appeared to be contagious.—A little girl of five years old whom I lost in this fever, became yellow in two hours after her death.

The measles prevailed in April and were of a most inflammatory nature. The weather in May and June was uncommonly wet. The fruit was much injured, and a great deal of hay destroyed by it. On the 14th of June General Stewart died with all the usual symptoms of a fatal yellow fever. Several other cases of yellow fever in this, and in the succeeding month, proved mortal, but they excited no alarm in the city, as the physicians who attended them, called them by other names.

The rain which fell about the middle of July checked this fever. August, September and October, were unusually healthy. A few cases of malignant fore-throat appeared in November. They were in all the patients that came under my notice, attended with bilious discharges from the stomach, and bowels. So little rain fell during the autumnal months that the wheat perished in many places. The weather in December was extremely cold. The lamps of the city were in several instances extinguished by it on the night of the 23d of the month at which time the mercury stood at 2° below 0 in the thermometer.

The

The yellow fever prevailed this year in Charleston in South Carolina, where it was produced by putrid exhalations from the cellars of houses which had been lately burnt. It was said by the physicians of that place not to be contagious. The same fever prevailed at the same time at Wilmington in North Carolina, and at Newburyport in the state of Massachusetts. In the latter place it was produced by the exhalation of putrid fish which had been carelessly thrown upon a wharf. Mr. Webster has discovered that great and extensive pestilential diseases, and earthquakes or eruptions of volcanos, comets and meteors, generally appear about at the same time. Men of genius and observation may perhaps discover hereafter a connection between certain phenomena in the heavens of another kind, and a morbid constitution of the atmosphere.—The following narrative taken from Mr. Brown's paper may serve as a ray of light upon this subject.

For the PHILADELPHIA GAZETTE.

MR. BROWN,

I have just taken up my pen to throw together a few hasty remarks on a very beautiful CORONA or HALO which appeared this morning. I first observed it about half after nine, though, I presume, it made its appearance much earlier: It then consisted of a
bright

bright circle, of which the sun was the centre, formed, as nearly as I could discern, as is usual with large CORONAS, of the seven primary colours, the inner circumference being *red*, and the outer *violet*. This appearance is not uncommon, though they seldom appear as luminous as this : But *this* was accompanied by a phenomenon, which I cannot discover to have been mentioned by any writer on this subject, which was a large white circle, which passed through the body of the sun.

About 11 o'clock I observed them with Hadley's quadrant, and found the diameter of the halo to be about 44° ; that of the white circle about 60° ; and the altitude of the Sun 66° . The nodes or points of intersection, continued horizontal during the whole time. The appearance of it changed several times during the morning ; sometimes both circles would grow faint, and then again would become vivid ; at one time they both disappeared, but again appeared in a few minutes more bright than ever ; until finally about one quarter after eleven, the white circle vanished, and in 15 minutes more the halo disappeared. All the morning, small, light clouds, from the S. E.

July 25, 1796.

T. S.

The

The winter of 1797 was in general healthy. During the spring, which was cold and wet, no diseases of any consequence occurred. The spring vegetables were late in coming to maturity, and there were every where in the neighbourhood of Philadelphia scanty crops of hay. In June and July, there fell but little rain. Dysenteries, cholera, scarlitina, and mumps, appeared in the suburbs in the latter month. On the 8th of July I visited Mr. Frisk, and on the 25th of the same month I visited Mr. Charles Burrel in the yellow fever in consultation with Dr. Physick. They both recovered by the plentiful use of depleting remedies.

The weather from the 2d to the 9th of August was rainy. On the 1st of this month I was called to visit Mr. Nathaniel Lewis in a violent bilious fever. On the 3d I visited Mr. Elisha Hall with the same disease. He had been ill several days before I saw him. Both these gentlemen died on the 6th of the month. They were both very yellow after death. Mr. Hall had a black vomiting on the day he died.

The news of the death of these two citizens, with unequivocal symptoms of yellow fever, excited a general alarm in the city. Attempts were made

to trace it to importation, but a little investigation soon proved that it was derived from the foul air of a ship which had just arrived from Marseilles, and which discharged her cargo at Pine street wharf, near the stores occupied by Mr. Lewis and Mr. Hall. Many other persons about the same time were affected with the fever from the same cause, in Water and Penn streets. About the middle of the month, a ship from Hamburgh communicated the disease, by means of her foul air, to the village of Kensington. It prevailed moreover in many instances in the suburbs, and in Kensington from putrid exhalations from gutters and marshy grounds, at a distance from the Delaware, and from the foul ships which have been mentioned. Proofs of the truth of each of these assertions shall be given in their proper place.

The disease was confined chiefly to the district of Southwark and the village of Kensington for several weeks. In September and October many cases occurred in the city, but most of them were easily traced to the above sources.

The following account of the weather during the months of August, September and October was obtained from Mr. Thomas Pryor. It is different from the weather in 1793. It is of consequence

quence to attend to this fact, inasmuch as it shows that an inflammatory constitution of the atmosphere can exist under different circumstances of the weather. It likewise accounts for the variety in the symptoms of the fever in different years and countries. Such is the influence of season and climate upon the symptoms of this fever, that it led Dr. M'Kitterick to suppose that the yellow fever of Charleston, so accurately described by Dr. Lining in the 2d volume of the Physical and Literary Essays of Edinburgh, was a different disease from the yellow fever of the West Indies. *

METEOROLOGICAL OBSERVATIONS, MADE IN PHILADELPHIA, AUGUST, 1797.

Thermo- meter.	Baro- meter.	WINDS and WEATHER.
1 73 to 75	30 0	S. E. E. Rain in the forenoon and afternoon.
2 72 to 76	30 0	N. E. by E. Cloudy with rain in the afternoon and night. Wind E. by N.
3 72 to 78	30 6	E. $\frac{1}{2}$ N. Rain in the morning, and all day and night.
4 72 to 78	30 4	E. Rained hard all day and at night.

* De febre Indiæ Occidentalis maligna flava, p. 12.

Therm.	Baro.	WINDS and WEATHER.
5 74 to 79	29 84	Wind light—S. W. Cloudy. Rain this morning. The air extremely damp; wind shifted to N. W. This evening heavy showers, with thunder.
6 73 to 76	30 86	W. N. W. Cloudy.
7 70 to 76	30 4	N. W. Close day. Rain in the evening and all night. Wind to E.
8 72 to 76	29 95	E. Rain this morning.
9 72 to 76	29 86	S. W. Cloudy morning.
10 69 to 73	30 16	N. W. Clear.
11 70 to 73 $\frac{1}{2}$	30 25	N. W. Clear. Rain all night.
12 71 to 74	30 5	S. W. Cloudy. Rain in the morning.—Cloudy all day.—Rain at night.
13 73 to 75	29 87	S. W. Cloudy. Rain all day.
14 70 to 74	29 9	N. W. Clear fine morning.
15 56 to 60	30 15	N. W. Clear fine morning.
16 60 to 64	30 24	N. W. Clear fine morning.
17 60 to 65	30 24	N. W. Air damp.
18 68 to 75	30 4	S. W. Cloudy. Rain, with thunder at night—a fine shower.
19 72 to 78	29 7	N. W. Clear. Cloudy in the evening, with thunder.
20 70 to 77	29 8	W. N. W. Fine clear morning.
21 74 to 76	29 9	N. W. Clear to E.
22 68 to 76		E. Small shower this morning.—Hard shower at 11, A. M. Wind N. E.
23 71 to 76	29 92	E. Cloudy. At noon calm.
24 71 to 75	29 95	Calm morning and clear.
25 70 to 75	30 5	N. E. Clear. Rain in the afternoon, with thunder.

BILIOUS YELLOW FEVER IN 1797. 15

Therm.	Baro.	WINDS and WEATHER.
26 70 to 75	30 5	S. E. Rain in the morning. Rained hard in the night, with thunder N. W.
27 68 to 76	29 9	N. W. Fine clear morning.
28 64 to 75	29 96	N. W. Clear.
29 59 to 70	30 0	E. Clear.
30 70 to 76	30 1	E. by S. Rain in the morning.
31 68 to 74	30 14	S. E. Cloudy. Damp air and fultry.

SEPTEMBER, 1797.

Thermo- meter	Baro- meter.	WINDS and WEATHER.
1 73 to 80	30 6	S. W. Cloudy. Damp air. Rain in the morning.
2 79 to 80	29 9	N. W. Clear. Cloudy in the evening, with lightning to the fouthward.
3 68 to 74	30 0	N. by W. Cloudy. Clear in the afternoon and night.
4 66 to 74	30 7	W. N. W. Clear fine morning.
5 58 to 72½	30 1	N. W. Clear. Cloudy in the evening.
6 58 to 72	30 13	Fresh at E. Clear. Rain in the evening.
7 56 to 76	30 28	E. Clear. Cloudy in the evening.
8 54 to 65	30 1	N. E. Clear and cool morning.— Flying clouds at noon.
9 56 to 65	30 1	E. N. E. Clear.
10 58 to 63	30 26	N. E. Clear fine morning. Wind fresh at N. E. all day.

Therm.	Baro.	WINDS and WEATHER.
11 53 to 64	30 13	N. to E. with flying clouds.
12 51 to 62	30 6	W. N. W. Clear cool morning.
13 56 to 67	30 3	S. W. Cloudy. Clear in the afternoon.
14 64 to 70	29 98	S. W. Clear.
15 66 to 73	29 85	S. W. Rain in the morning. Cloudy in the afternoon.
16 62 to 70	29 95	N. W. Clear.
17 56 to 67	30 0	N. W. Clear.
18 58 to 63	29 88 to 29 62	E. Cloudy. Rained all day, and thun- der. Rained very heavy at night.
19 55 to 63	29 75	W. N. W. Clear fine morning.
20 47 to 63	30 8	W. N. W. Clear fine morning. D Moon at 9 50 morning.
21 46 to 60	30 0	N. E. Clear fine morning;—to S. E. in the evening. Cloudy at night.
22 56 to 65	30 4	N. W. Rain in the morning. Rain at night.
23 56 to 66	30 0	N. N. E. Cloudy.
24 52 to 66	29 9 to 29 78	E. by S. Clear fine morning. Clou- dy at night.
25 56 to 68	29 37	W. N. W. Clear fine morning—clear all day.
26 58 to 68	29 95	E. In the morning flying clouds.
27 48 to 63	30 2	N. W. Clear fine morning—clear all day.
28 54 to 63	30 2	W. N. W. Clear fine morning—clear all day.
29 54 to 63	30 15	E. Clear fine morning.
30 60 to 65	30 26	E. Fresh. Cloudy morning. Rain in the night.

OCTOBER,

OCTOBER, 1797.

Thermo- meter.	Baro- meter.	WINDS and WEATHER.
1 55 to 65	30 16	N. E. Rain this morning and great part of the day.
2 55 to 66	30 0	N. W. Clear.
3 60 to 70	29 9	S. E. Clear. Air damp.
4 60 to 70	29 5	W. N. W. Rain this morning.
5 46 to 60	30 0	W. N. W. to S. by W. in the evening. Clear all day. White frost this morning.
6 55 to 65	30 0	S. W. Clear fine morning. White frost.
7 56 to 76	30 0	S. W. Cloudy. Rain in the night.
8 56 to 70	30 29	S. Cloudy this morning—air damp. Wind shifted to W. N. W. Blows fresh.
9 50 to 60	29 85	W. N. W. Clear morning. Fresh at N. W. in the evening.
10 40 to 58	30 1	W. N. W. Clear. Frost this morning.
11 38 to 56	30 2	W. N. W. Cloudy.
12 34 to 52	30 38	W. N. W. Clear. Ice this morning.
13 35 to 55	30 5	N. Clear fine morning. Ice this morning.
14 40 to 60	30 28	N. E. Cloudy.
15 50 to 65	30 16	W. N. W. Clear.
16 36 to 56	30 2	W. N. W. Clear fine morning.
17 37 to 56	30 18	W. N. W. Clear fine morning.
18 47 to 60	29 86	W. N. W. Clear fine weather.
19 48 to 60	30 6	N. W. Clear fine day.

Therm.	Baro.	WINDS and WEATHER.
20 42 to 55	30 8	N. E. Cloudy. Rain in the afternoon and night. Blows fresh at N. E.
21 42 to 50	29 92	N. E. Blows fresh, (with a little rain.)—Thunder in the night, with rain.
22 44 to 56	29 57	N. W. Rain in the morning.
23 44 to 56	29 95	S. W. Clear fine morning.
24 42 to 54	30 5	N. E. Cloudy. A great deal of rain in the night.
25 40 to 52	30 15	N. E. Clear fine morning.
26 36 to 48	30 29	W. N. W. Clear.
27 34 to 46	30 23	Fresh at S. W. Clear.
28 40 to 52	29 95	W. N. W. Cloudy.
29 34 to 46	29 82	W. Cloudy.
30 32 to 42	29 93	N. W. Clear. Hard frost this morning.
31 38 to 48	30 18	W. S. W. Cloudy part of this day; clear the remainder.

In addition to the register of the weather, it may not be improper to add, that musquetoës were more numerous during the prevalence of the fever than in 1793. An unusual number of ants and cockroaches were likewise observed; and it was said that the martins and swallows disappeared for a while, from the city and its neighbourhood.

A disease prevailed among the cats some weeks before the yellow fever appeared in the city. It
excited

excited a belief in an unwholesome state of the atmosphere, and apprehensions of a sickly fall. It was generally fatal.

After the first week in September, there were no diseases to be seen but yellow fever. In that part of the town which is between Walnut and Vine streets it was uncommonly healthy. A similar retreat of inferior diseases has been observed to take place during the prevalence of the plague in London, Holland, and Germany, according to the histories of that disease by Sydenham, Diemerbroeck, Sennertus and Hildanus. It appears from the register of the weather, that it rained during the greatest part of the day on the 1st of October. The effects of this rain upon the disease shall be mentioned hereafter. On the 10th the weather became cool, and on the nights of the 12th and 13th of the month, there was a frost accompanied with ice, which appeared to give a sudden and complete check to the disease. *

* It has been supposed that the yellow fever is checked only by heavy rains and frost. Dr. Irvine lately informed me, that the cases of it were always lessened in Charleston in the year 1796 when the wind came from the east or south east, and that they revived when it blew from the west or south west.

The reader will probably expect an account of the effects of this distressing epidemic upon the public mind.—The terror of the citizens for a while was very great. Rumors of an opposite and contradictory nature of the increase and mortality of the fever were in constant circulation. A stoppage was put to business, and it was computed that about two-thirds of the inhabitants left the city.

The legislature of the state early passed a law granting 10,000 dollars for the relief of the sufferers by the fever. The citizens in and out of town, as also many of the citizens of our sister states, contributed more than that sum for the same charitable purpose. This money was issued by a committee appointed by the governor of the state. A hospital for the reception of the poor was established on the east side of the river Schuylkill, and amply provided with every thing necessary for the accommodation of the sick. Tents were likewise pitched on the east side of Schuylkill, to which all those people were invited who were exposed to the danger of taking the disease, and who had not means to provide a more comfortable retreat for themselves in the country.

I am sorry to add, that the moral effects of the fever upon the minds of our citizens were confined
chiefly

chiefly to these acts of benevolence. Many of the publications in the newspapers upon its existence, mode of cure and origin, partook of a virulent spirit which illy accorded with the distresses of the city. It was a cause of lamentation likewise to many serious people, that the citizens in general were less disposed than in 1793, to acknowledge the agency of a divine hand in their afflictions. In some, a levity of mind appeared upon this solemn occasion. A worthy bookseller gave me a melancholy proof of this assertion, by informing me, that he had never been asked for playing cards so often in the same time, as he had been during the prevalence of the fever.

Philadelphia was not the only place in the United States which suffered by the yellow fever. It prevailed at the same time at Providence in Rhode Island, at Norfolk in Virginia, at Baltimore, and in many of the country towns of New England, New Jersey, and Pennsylvania.

The influenza followed the yellow fever as it did in the year 1793. It made its appearance in the latter end of October, and affected chiefly those citizens who had been out of town.

The weather became severely cold about the middle of November, and continued so during the greatest part of the winter. The navigation of the Delaware was completely obstructed on the 5th of December. Cases of bilious pleurisy and of the hydrocephalic state of fever, were common in all the winter months. They yielded in every instance which came under my care, to copious depletion by the lancet, and mercury.

In the months of February and March, a catarrhal fever, attended in some instances with symptoms of cynanche trachealis, prevailed among children. It was cured by gentle pukes, purges of calomel and blood-letting. I bled a child of Mr. Pisso, of six weeks old, twice, and a child of Mr. Billington, of three weeks old, once in this fever, and thereby I believe saved their lives.

The predisposing causes of the yellow fever in the year 1797 were the same as in the year 1793. Strangers were as usual most subject to it. The heat of the body in such persons in the West Indies has been found to be between three and four degrees above that of the temperature of the natives. This fact is taken notice of by Dr. M'Kitterick, and to this he ascribes, in part, the predisposition of new comers to the yellow fever.

In addition to the common exciting causes of this disease formerly enumerated, I have only to add, that it was induced in one of my patients by smoking a segar. He had not been accustomed to the use of tobacco.

I saw no new premonitory symptoms of this fever except a tooth-ach. It occurred in Dr. Physick, Dr. Caldwell, and in Mr. Bellenger, one of my pupils. In Miss Elliot there was such a soreness in her teeth, that she could hardly close her mouth on the day in which she was attacked by the fever. Neither of these persons had taken mercury to obviate the disease.

I shall now deliver a short account of the symptoms of the yellow fever, as they appeared in several of the different systems of the body.

I. There was but little difference in the state of the pulse in this epidemic from what has been recorded in the fevers of 1793 and 1794. I perceived a pulse in several cases which felt like a soft quill which had been *shattered* by being trodden upon. It occurred in Dr. Jones and Dr. Dobell, and in several other persons who had been worn down by great fatigue, and it was in every instance, followed by a fatal issue of the fever. In Dr. Jones
this

this state of the pulse was accompanied with such a difficulty of breathing, that every breath he drew on the day of his attack, he informed me, was the effort of a sigh. He died on the 17th of September, and on the sixth day of his fever.

The action of the arteries was as usual very irregular in many cases. In some there was a distressing throbbing of the vessels in the brain, and in one of my patients a similar sensation in the bowels, but without pain.—Many people had issues of blood from their blisters in this fever.

I saw nothing new in the effects of the fever upon the liver, lungs, brain, nor upon the stomach and bowels.

II. The excretions were distinguished by no unusual marks. I met with no recoveries where there were not black stools. They excoriated the rectum in Dr. Way. It was a happy circumstance where morbid bilious matter came away in the beginning of the disorder. But it frequently resisted the most powerful cathartics until the 5th or 7th day of the fever, at which time it appeared rather to yield to the disorganization of the liver than to medicine. Where sufficient blood-letting had been previously used, the patient frequently recovered, even
after

after the black discharges from the bowels took place in a late stage of the disease.

Dr. Coxe informed me that he attended a child of seventeen months old which had *white* stools for several days. Towards the close of its disease, it had black stools, and soon afterwards died.

Dr. Stewart ventured to taste the black matter which was discharged from the stomach just before death in two instances. In both cases it blistered his tongue.

Several of my patients discharged worms during the fever. In one instance they were discharged from the mouth.

A preternatural frequency in making pale water attended the first attack of the disease in Mr. Joseph Fisher.

A discharge of an unusual quantity of urine preceded, a few hours, the death of the daughter of Mrs. Read.

In two of my patients there was a total suppression of urine. In one of them it continued five days without exciting any pain.

There

There was no disposition to sweat after the first and second days of the fever. Even in those states of the fever in which the intermissions were most complete, there was seldom any moisture or even softness on the skin. This was so characteristic of malignity in the bilious fever, that where I found the opposite state of the skin towards the close of a paroxysm, I did not hesitate to encourage my patient, by assuring him that his fever was of a mild nature, and would most probably be safe in its issue.

III. I saw no unusual marks of the disease in the nervous system. The mind was seldom affected by delirium after the loss of blood. There was a disposition to shed tears in two of my patients. One of them wept during the whole time of a paroxysm of the fever. In one case I observed an uncommon dulness of apprehension, with no other mark of a diseased state of the mind. It was in a man whose faculties in ordinary health, acted with celerity and vigor.

Dr. Caldwell informed me of a singular change which took place in the operations of his mind during his recovery from the fever. His imagination carried him to an early period of his life, and engaged him for a day or two in playing with a bow and arrow, and in amusements of which he had
been

been fond when a boy. A similar change occurred in the mind of my former pupil Dr. Fisher, during his convalescence from the yellow fever in 1793. He amused himself for two days in looking over the pictures of a family Bible which lay in his room, and declared that he found the same kind of pleasure in this employment that he did when a child. However uninteresting these facts may now appear, the time will come, when they may probably furnish useful hints for completing the physiology, and pathology of the mind.

Where blood-letting had not been used, patients frequently died of convulsions.

IV. The senses of seeing and feeling were impaired in several cases. Mrs. Bradford's vision was so weak that she hardly knew her friends at her bedside. I had great pleasure in observing this alarming symptom suddenly yield to the loss of four ounces of blood.

Several persons who died of this fever, did not from the beginning to the end of the disease feel any pain. I shall hereafter endeavour to explain the cause of this insensible state of the nerves.

The appetite for food was unimpaired for three days in Mr. Andrew Brown, at a time when his pulse indicated a high grade of the fever. I heard of several persons who ate with avidity just before they died.

V. Glandular swellings were very uncommon in this fever. I should have ascribed their absence to the copious use of depleting remedies in my practice, had I not been informed that morbid affections of the lymphatic glands were unknown in the city hospital where blood-letting was seldom used, and where the patients in many instances died before they had time to take medicine of any kind.

VI. The skin was cool, dry, smooth, and even shining in some cases. Yellowness was not universal. Those small red spots which have been compared to musquito bites, occurred in several of my patients. Dr. John Duffield, who acted as house surgeon and apothecary at the city hospital, informed me that he saw vibices on the skin in many cases, and that they were all more or less sore to the touch.

VII. The blood was dissolved in a few cases. That appearance of the blood which has been compared to the washings of flesh, was very common. It was more or less fizy towards the close of the disease

case in most cases. I have suspected, from this circumstance, that this mark of ordinary morbid action, or inflammation, was in part the effect of the mercury acting upon the blood-vessels. It is well known that fizy blood generally accompanies a salivation. If this conjecture be well founded, it will not militate against the use of mercury in malignant fevers, for it shews that this valuable medicine possesses a power of changing an extraordinary and dangerous degree of morbid action in the blood-vessels, to that which is more common and safe. I have seldom seen a yellow fever terminate fatally after the appearance of fizy blood.

Dr. Stewart informed me that in those cases in which the serum of the blood had a yellow colour, it imparted a saline taste only to his tongue. He was the more struck with this fact, as he perceived a strong bitter state upon his skin in a severe attack of the yellow fever in 1793.

I proceed next to take notice of the type of the fever.

In many cases it appeared in the form of a remitting and intermitting fever. The quotidian and tertian forms were most common. In Mr. Robert Wharton it appeared in the form of a quartan.

But

But it frequently assumed the character which is given of the same fever in Charleston by Dr. Lining. It came on without chills, and continued without any remission for three days; after which the patient believed himself to be well, and sometimes rose from his bed, and applied to business. On the fourth or fifth day the fever returned, and unless copious evacuations had been used in the early stage of the disease, it generally proved fatal. Sometimes the powers of the system were depressed below the return of active fever, and the patient sunk away by an easy death without pain, heat, or a quick pulse. I have been much puzzled to distinguish a crisis of the fever on the third or fourth day, from the insidious appearance which has been described. It deceived me in 1793. It may be known by a preternatural coolness in the skin, and languor in the pulse, by an inability to sit up long without fatigue, or faintness, by a dull eye, and by great depression of mind, or such a flow of spirits as sometimes to produce a declaration from the patient that "he feels too well." Where these symptoms appear, the patient should be informed of his danger, and urged to the continuance of such remedies as are proper for him.

The following states or forms were observable in the fever :

1. In

1. In a few cases the contagion or miasmata produced death in four and twenty hours with convulsions, coma, or apoplexy.

2. There were OPEN cases in which the pulse was full and tense as in a pleurisy or rheumatism from the beginning to the end of the fever. They were generally attended with a good deal of pain.

3. There were depressed or LOCKED cases, in which there were a sense of great debility, but little or no pain, a depressed and slow pulse, a cool skin, cold hands and feet, and obstructed excretions.

4. There were DIVIDED or MIXED cases in which the pulse was active until the 4th day, after which it became depressed. All the other symptoms of the locked state of the fever accompanied this depressed state of the pulse.

5. There were cases in which the pulse imparted a perception like that of a soft and SHATTERED quill. I have before mentioned that this state of the pulse occurred in Dr. Jones and Dr. Dobell. I felt it but once and on the day of his attack in the latter gentleman, and expressed my opinion of his extreme danger to my son upon my return from
visiting

visiting him. I did not meet with a case which terminated favourably, where I perceived this SHATTERED pulse. A disposition to sweat occurred in this state of the fever.

6. There were what Dr. Caldwell happily called WALKING cases. The patients here were flushed or pale, had a full or tense pulse, but complained of no pain, had a good appetite, and walked about their rooms or houses as if they were but little indisposed until a day or two, and in some instances, until a few hours before they died. The impression of the remote cause of the fever in these cases was beyond sensation, for upon removing a part of it by bleeding or purging, the patients complained of pain, and the excitement of the muscles passed so completely into the blood-vessels and alimentary canal, as to convert the fever into a common and more natural form. These cases were always dangerous, and when neglected, generally terminated in death. Mr. Brown's fever came on in this insidious shape. It was cured by the loss of upwards of an 100 ounces of blood, and a plentiful salivation.

7. There was the INTERMITTING form in this fever. This, like the last, often deceived the patient by leading him to suppose his disease was of a common or trifling nature. It prevented Mr. Richard
Smith

Smith from applying for medical aid in an attack of the fever for several days, by which means it made such an impression upon his viscera, that depleting remedies were in vain used to cure him. He died in the prime of life, beloved and lamented by a numerous circle of relations and friends.

8. There was a form of this fever in which it resembled the mild remittent of common seasons. It was distinguished from it chiefly by the black colour of the intestinal evacuations.

9. There were cases of this fever so light, that patients were said to be neither *sick*, nor *well*; or in other words, they were sick and well, half a dozen times in a day. Such persons walked about, and transacted their ordinary business, but complained of dulness, and occasionally, of shooting pains in their heads. Sometimes the stomach was affected with sickness, and the bowels with diarrhœa or costiveness. All of them complained of night sweats. The pulse was quicker than natural, but seldom had that convulsive action which constitutes fever. Purges always brought away black stools from such patients, and this circumstance served to establish its relationship to the prevailing epidemic. Now and then by neglect, or improper treatment, it assumed a higher and more dangerous grade of the fever, and

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became

became fatal, but it more commonly yielded to nature, or to a single dose of purging physic.

10. There were a few cases in which the skin was affected with universal yellowness, but without more pain or indisposition than usually occurs in the jaundice. They were very frequent in the year 1793, and generally prevail in the autumn, in all places subject to bilious fever.

11. There were CHRONIC cases of this fever. It is from the want of observation that physicians limit the duration of the yellow fever to certain days. I have seen many instances in which it has been protracted into what is called by authors a slow nervous fever. The wife of captain Peter Bell died of a black vomiting after an illness of nearly one month. Dr. Pinckard formerly one of the physicians of the British army in the West Indies, in a late visit to this city informed me, that he had often seen the yellow fever put on a chronic form in the West India Islands.

In delivering this detail of the various forms of the yellow fever, I am aware that I oppose the opinions of many of my medical brethren who ascribe to it, a certain uniform character which is removed beyond the influence of climate, habit, predisposition, and the different strength and combinations of remote and
exciting

exciting causes.—This uniformity in the symptoms of this fever is said to exist in the West Indies, and every deviation from it in the United States is called by another name. The following communication which I received from Dr. Pinkard will shew that this disease is as different in its forms in the West Indies, as it is in this country.

“ The yellow fever, as it appeared, among the
 “ troops, in Guiana, and the West India Islands,
 “ in the years 1796, and 1797, exhibited such
 “ perpetual instability, and varied so incessantly in
 “ its character, that I could not discover any one
 “ symptom to be, decidedly diagnostic; and, hence,
 “ I have been led into an opinion that the yellow
 “ fever, so called, is not a distinct, or specific,
 “ disease, but, merely, an aggravated degree of the
 “ common remittent or bilious fever of hot climates,
 “ rendered irregular in form, and augmented in
 “ malignity, from appearing in subjects unaccus-
 “ tomed to the climate.”

Philadelphia, January 12th, 1798.

Many other authorities equally respectable with Dr. Pinckard's, among whom are Pringle, Huck, and Hunter, might be adduced in support of the unity of bilious fever. But to multiply them further, would be an act of homage to the weakness

of human reason, and an acknowledgement of the infant state of our knowledge in medicine. As well might we suppose nature to be an artist, and that diseases were shaped by her like a piece of statuary, or a suit of clothes, by means of a chissel, or pair of scissars, as admit every different form and grade of morbid action in the system, to be a distinct disease.

Notwithstanding the fever put on the eleven forms which have been described, the moderate cases were few, compared with those of a malignant and dangerous nature. It was upon this account that the mortality was greater in the same number of patients, who were treated with the same remedies, than it was in the years 1793 and 1794. The disease moreover partook of a more malignant character than the two epidemics that have been mentioned. The yellow fever in Norfolk, Drs. Taylor and Hansford informed me in a letter I received from them, was much more malignant and fatal under equal circumstances than it was in 1795.

During the prevalence of the fever I attended the following persons who had been affected by the epidemic of 1793—viz. Dr. Physick, Thomas Leaming, Thomas Canby, Samuel Bradford, and George Loxley, also Mrs. Eggar who had a violent attack
of

of it in the year 1794. Samuel Bradford was likewise affected by it in 1794.

There are two opinions which verge to equal extremes upon the subject of the contagious nature of the yellow fever. While most of the West India physicians deny its contagious quality altogether, many American physicians act as if they believed it could be communicated by the deck of a ship, after she has performed a voyage from a tropical country. In a West India climate where the accumulation of the effluvia from sick people is prevented by open doors and windows, it is easy to conceive this fever cannot be often propagated by contagion. Even in our own country it has rarely been observed to be contagious, in the months of July and August. But after cool weather renders it necessary to exclude the fresh air from sick rooms, it is as easy to conceive the same effluvia may be so accumulated, and concentrated, as to produce the disease in other people. In this way it was propagated in some instances during the year 1797, but by no means so often as in 1793 under equal circumstances. The reason of this difference in the contagious nature of this fever in those two years must be sought for in the difference of the sensible qualities of the atmosphere.

During

During my intercourse with the sick, I felt the contagion of the fever operate upon my system in the most sensible manner. It produced languor, a pain in my head, and sickness at my stomach. A sighing attended me occasionally for upwards of two weeks. This symptom left me suddenly, and was succeeded by a hoarseness, and at times, with such a feebleness in my voice as to make speaking painful to me. Having observed this affection of the trachea, to be a precursor of the fever in several cases, it kept me under daily apprehensions of being confined by it. It gradually went off after the 1st of October. I ascribed my recovery from it, and a sudden diminution of the effects of the contagion upon my system, to a change produced in the atmosphere by the rain which fell on that day.

The contagion acted in a peculiar manner upon Dr. Dobell. It induced a sneezing every time he went into a sick room.

The gutters emitted in many places, a sulphurous smell during the prevalence of the fever. Upon rubbing my hands together I could at any time excite a similar smell in them. I have taken notice of this effect of the matters which produced the disease, upon the body, in the year 1794.

In order to prevent an attack of the fever, I carefully avoided all its exciting causes. I reduced my diet, and lived sparingly upon tea, coffee, milk, and the common fruits and garden vegetables of the season, with a small quantity of salted meat, and smoked herring. My drinks were milk and water, weak claret and water, and weak porter and water. I sheltered myself as much as possible from the rays of the sun, and from the action of the evening air, and accommodated my dress to the changes in the temperature of the atmosphere. By similar means, I have reason to believe, many hundred people escaped the disease who were constantly exposed to it. There appears to be no combination of climate and miasmata that can resist the good effects of abstinence or depleting medicines in preventing, or moderating an attack of this fever. Of this Dr. Borland of the British military hospitals in the West Indies has lately furnished me with the following proof. “ In
 “ the beginning of August 1797 (says the Doctor
 “ in a report which he politely put into my hands)
 “ 109 Dutch artillery arrived at Port-au-Prince in
 “ the Bangalore transport. The florid appearance
 “ of the men, their heavy cumbersome cloathing,
 “ and the season of the year, seemed all unfavour-
 “ able omens of the melancholy fate we presumed
 “ awaited them. It was however thought a favour-
 “ able opportunity by Dr. Jackson and myself to
 “ try

“ try what could be done in warding off the fever.
“ It was accordingly suggested to Monsieur Con-
“ turier the chief surgeon of the foreign troops,
“ and the surgeon of the regiment, that the whole
“ detachment should be blooded freely, and that the
“ morning after a dose of physic should be admini-
“ stered to every man. This was implicitly complied
“ with in a day or two after, and at this moment in
“ which I write, although a period of four months
“ has elapsed, but two of that detachment have died,
“ one of whom was in a dangerous state when he
“ landed. A success unparalleled during the war in
“ St. Domingo ! It is true several have been attack-
“ ed with the disease, but in those, the symptoms
“ were less violent, and readily subsided by the early
“ use of the lancet,

“ The crew of the Bangalore on her arrival at
“ Port-au-Prince consisted of twenty eight men.
“ With them no preventive plan was followed : in a
“ very few weeks eight died, and at present, of the
“ original number but fourteen remain.”

I met with one instance in which a light attack of the fever was excited by the breath of a person who was infected, but in whom the disease had not made its appearance.

One of my patients who was under a salivation washed his mouth with milk, and discharged it into a basin. Two cats licked up part of this milk. They both sickened immediately, with the symptoms of fever. One of them died on the 4th and the other on the 7th day afterwards.

The number of deaths by the fever in the months of August, September and October, amounted to between ten and eleven hundred. In the list of the dead were nine practitioners of physic, several of whom were gentlemen of the most respectable characters. This number will be thought considerable when it is added, that not more than three or four and twenty physicians attended patients in the disease. Of the survivors of that number, eight were affected with the fever. This extraordinary mortality and sickness among the physicians, must be ascribed to their uncommon fatigue in attending upon the sick, and to their inability to command their time, and labours, so as to avoid the exciting causes of the fever. Among the medical gentlemen whose deaths have been mentioned, was my excellent friend Dr. Nicholas Way. I shall carry to my grave an affectionate remembrance of him. We passed our youth together in the study of medicine, and lived to the time of his death in the habits of the tenderest friendship. In the year 1794
he

he removed from Wilmington, in the Delaware state, to Philadelphia, where his talents and manners soon introduced him into extensive business. His independent fortune furnished his friends with arguments to advise him to retire from the city upon the first appearance of the fever. But his humanity prevailed over the dictates of interest, and the love of life. He was active and intelligent in suggesting and executing plans to arrest the progress of the disease, and to lessen the distresses of the poor. On the 27th of August he was seized, after a ride from the country in the evening air, with a chilly fit and fever. I saw him the next day, and advised the usual depleting remedies. He submitted to my prescriptions with reluctance, and in a sparing manner, from an opinion that his fever was nothing but a common remittent. To enforce obedience to my advice, I called upon Dr. Griffiths to visit him with me. Our combined exertions to overcome his prejudices against our remedies were ineffectual. At two o'clock in the afternoon, on the sixth day of his disease, with an aching heart I saw the sweat of death upon his forehead, and felt his cold arm without a pulse. He spoke to me with difficulty : upon my rising from his bed side to leave him, his eyes filled with tears, and his countenance spoke a language which I still feel, but am unable to describe. I promised to return in a short time,

with

with a view of attending the last scene of his life. Immediately after I left his room, he wept aloud. I returned hastily to him, and found him in convulsions. He died a few hours afterwards. Had I met with no other affliction in the autumn of 1797 than that which I experienced from this affecting scene, it would have been a severe one, but it was a part only of what I suffered from the death of other friends, from the malice of enemies, and from the complicated distresses of my family. I beg the reader's pardon for this digression. It shall be the only time, and place, in which any notice shall be taken of my sorrows and persecutions in the course of this publication.

It remains now to mention the origin of the fever.

Soon after the citizens returned from the country, I received the following letter from the governor of the state.

“ *Letter*

“ *Letter from THOMAS MIFFLIN, Esq. Governor of the State of Pennsylvania, to Dr. BENJAMIN RUSH.*

“ *Philadelphia, 6th November, 1797.*

“ SIR,

“ I AM desirous to obtain, for the information of the Legislature, the most correct account of the origin, progress, and nature of the disease that has recently afflicted the city of Philadelphia, with a view that the most efficacious steps should be taken to prevent a recurrence of so dreadful a calamity. I have requested the opinion of the college of physicians on the subject; but, as I understand that you and many other learned members of the faculty do not attend the deliberations of that institution, the result of my inquiries cannot be perfectly satisfactory without your co-operation and assistance. Permit me, therefore, Sir, to beg the favour of you, and of such of your brethren as you shall be pleased to consult, to state, in answer to this letter, the opinion which your researches and experience have enabled you to form on the important object of the present investigation.

I am respectfully, Sir,

Your most obedient

Humble servant,

THOMAS MIFFLIN.”

“ *Dr. BENJAMIN RUSH.*”

To

To this letter the following answer was sent, subscribed by thirteen of the physicians of the city.

“ SIR,

“ IN compliance with your request, the subscribers have devoted themselves to the investigation of the origin, progress, and nature of the fever which lately prevailed in our city, and we have now the honor of communicating to you the result of our inquiries and observations.

“ We conceive the fever which has lately prevailed in our city, commonly called the yellow fever, to be the bilious remitting fever of warm climates excited to a higher degree of malignity by circumstances to be mentioned hereafter.

“ Our reasons for this opinion are as follows :

“ I. The sameness of their origin ; both being the offspring of putrefaction. Of this there are many proofs in the histories of the yellow fever in the West Indies. Where there is no putrefaction, the West India islands enjoy a perfect exemption from that disease in common with northern climates.

“ II. The yellow fever makes its appearance in those months chiefly in which the bilious fever prevails

vails in our country, and is uniformly checked and destroyed by the same causes, *viz.* heavy rains and frosts.

“ III. The symptoms of the bilious and yellow fever are the same in their nature. They differ only in their degree. It is no objection to this assertion that there is sometimes a deficiency or absence of bile in the yellow fever. This symptom is the effect only of a torpid state of the liver, produced by the greater force of the disease acting upon that part of the body. By means of depleting remedies this torpor is removed and the disease thereby made to assume its original and simple bilious character.

“ IV. The common bilious and yellow fever often run into each other. By depleting remedies the most malignant yellow fever may be changed into a common bilious fever, and by tonic remedies, improperly applied, the common bilious fever may be made to assume the symptoms of the most malignant yellow fever.

“ V. The common bilious and yellow fevers are alike contagious, under certain circumstances of the weather and of predisposition in the body. That the common bilious fever is contagious, we
assert

assert from the observations of some of us, and from the authority of many physicians, who have long commanded the highest respect in medicine.

“ VI. The yellow and mild bilious fevers mutually propagate each other. We conceive a belief in the unity of these two states of fever, to be deeply interesting to humanity, inasmuch as it may lead patients to an early application for medical aid, and physicians to the use of the same remedies for each of them, varying those remedies only according to the force of the disorder. It is no objection to this opinion, that that state of bilious fever called the yellow fever, is a *modern* appearance in our country. From certain revolutions in the atmosphere as yet observed only, but not accounted for by physicians, diseases have in all ages and countries alternately risen and fallen in their force and danger. At present a constitution of the atmosphere prevails in the United States which disposes to fevers of a highly inflammatory character. It began in the year 1793. Its duration in other countries has been from one to fifty years. It is not peculiar to the common bilious fever to have put on more inflammatory symptoms than in former years. There is scarcely a disease which has not been affected in a similar way by the late change in our atmosphere, and that does not call for a greater force of depleting

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ing remedies than were required to cure them before the year 1793.

“ VII. And LASTLY. The yellow fever affects the system more than once, in common with the bilious fever. Of this there were many instances during the prevalence of our late epidemic.

“ The fever which lately prevailed in our city, appears from the documents which accompany this letter, to have been derived from the following sources.

“ I. Putrid exhalations from the gutters, streets, ponds, and marshy grounds in the neighbourhood of the city. From some one of these sources we derive a case attended by Dr. Caldwell on the 9th of June—one attended by Dr. Pascalis on the 22d July, and two cases attended by Dr. Rush and Dr. Physick on the 5th and 15th of the same month; and also most of those cases of yellow fever, which appeared in the northern parts of the city, and near Kensington bridge, in the months of August, September and October. We are the more satisfied of the truth of this source of the fever, from the numerous accounts we have received of the prevalence of the same fever, and from the same causes, during the late autumn in New York, and in various parts

parts of New Jersey, Pennsylvania, Maryland, Virginia, and South Carolina, not only in sea ports, but inland towns. The peculiar disposition of these exhalations to produce disease and death, was evinced early in the season by the mortality which prevailed among the cats, and during every part of the season, by the mortality which prevailed in many parts of our country among horses. The disease which proved so fatal to the latter animals, is known among the farmers by the name of the *Yellow Water*. We conceive it to be a modification of the yellow fever.

“ II. A second source of our late fever appears to have been derived from the noxious air emitted from the hold of the snow Navigation, capt. Linstroom, which arrived with a healthy crew from Marseilles on the 25th of July, and discharged her cargo at Latimer’s wharf after a passage of eighty days. We are led to ascribe the principal part of the disease which prevailed in the south end of the city to this noxious air, and that for the following reasons :

“ 1. The fever appeared first on board this vessel and in its neighbourhood, affecting a great number of persons nearly at the same time, and so remote from each other that it could not be propagated by contagion.

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“ 2. There

“ 2. There was in the hold of this vessel a quantity of vegetable matters, such as prunes, almonds, olives, capers, and several other articles, some of which were in a state of putrefaction.

“ 3. A most offensive smell was emitted from this vessel, after she had discharged her cargo, which was perceived by persons several hundred feet from the wharf where she was moored.

“ 4. A similar fever has been produced from similar causes, in a variety of instances : we shall briefly mention a few of them.

“ At Tortola, a fever was produced in the month of June, in the year 1787, on board the ship *Britannia*, capt. James Welch, from the noxious air generated from a few bushels of potatoes, which destroyed the captain, mate, and most of the crew, in a few days.

“ Two sailors were affected with a malignant fever, on board the —, capt. Thomas Egger, in the month of March, 1797, from the noxious air produced by wine that had putrefied in the hold of the ship, one of whom died soon after her arrival at Philadelphia.

“ In the month of June, 1793, the yellow fever was generated by the noxious air of some rotted
bags

bags of pepper on board a French Indiaman, which was carried into the port of Bridgetown, by the British letter of marque Pilgrim. All the white men, and most of the negroes employed in removing this pepper, perished with the yellow fever, and the foul atmosphere affected the town, where it proved fatal to many of the inhabitants.

“ On board the Busbridge Indiaman, a yellow fever was produced in the month of May, 1792, on her passage from England to Madras, which affected above two hundred of the crew. It was supposed to be derived from infection, but many circumstances concur to make it probable that it was derived from noxious air. The absence of smell in the air does not militate against this opinion, for there are many proofs of the most malignant fevers being brought on by airs which produced no impression on the sense of smelling. This is more frequently the case when the impure air has passed a considerable distance from its source, and becomes diluted with the purer air of the atmosphere.

“ Several cases are related by Dr. Lind, in his treatise upon Fever and Infection of the Yellow Fever, originating at sea under circumstances which forbade the suspicion of infection, and which can only be ascribed to the impure air generated from putrid vegetables.

“ So well known, and so generally admitted is this source of yellow fever in warm climates, that Dr. Shannon, a late writer upon the means of preventing the diseases of warm climates, in enumerating its various causes, expressly mentions “ the putrid effluvia of a ship’s hold.”

“ We wish due attention to be paid to these facts, not only because they lead to the certain means of preventing one of the sources of this fever, but because they explain the reasons, why sailors are so often its first victims, and why from this circumstance the origin of the disease has been so hastily, but erroneously, ascribed solely to importation.

“ The fever which prevailed along the shore of the Delaware, in Kensington, and which proved fatal to Mr. Joseph Bowers and two of his family, we believe originated from the noxious air emitted from the hold of the ship *Huldah*, capt. Wm. Warner. This air was generated by the putrefaction of coffee, which had remained there during her voyage from Philadelphia to Hamburgh, and back again. *

“ In the course of our inquiries, we were led to suspect one source of our late fever, to be of foreign origin. The sails of the armed ship *Hinde*, on board

* See Appendix, letter A.

board of which several persons had died of the yellow fever, on her passage from Port-au-Prince, and which arrived on the 4th of August, were sent to the sail store of Mr. Moyse. Four persons belonging to the loft were soon afterwards affected with symptoms of a bilious yellow fever. We shall not decide positively upon the origin of the fever in these cases; but the following facts render it probable that it was not derived from the persons who had died of it on board the suspected vessel.

“ 1. The sails emitted an offensive smell; 2. three of the cases of the persons affected in the sail loft were of a mild grade of the fever; 3. the fever was not propagated by contagion from any one of them; 4. the sail loft was within the influence of the noxious air, which was emitted from the hold of the snow Navigation, being not more than fifty yards, and was in the direction of the wind which blew at that time over her. The extent of this air has not been accurately ascertained, but many analogies gave us reason to believe that it may be conveyed by the wind, in its deleterious state, from half a mile, to a mile.

“ In support of the opinion we have delivered of the origin of our late fever, we must add further, that in that part of the city which lies between
Walnut

Walnut and Vine streets, and which appeared to be free from the effects of exhalation and the noxious air of the ships, there were but few cases of the fever which appeared to spread by contagion, even under the most favourable circumstances for that purpose.

“ Having pointed out the nature and origin of our late fever, we hope we shall be excused in mentioning the means of preventing it in future. These are,

“ FIRST, A continuance of the present laws for preventing the importation of the disease from the West Indies, and other parts of the world where it usually prevails.

“ SECONDLY, Removing all those matters from our streets, gutters, cellars, gardens, yards, stores, vaults, ponds, &c. which by putrefaction in warm weather afford the most frequent remote cause of the disease, in this country. For this purpose we recommend the appointment of a certain number of physicians, whose business it shall be to inspect all such places in the city, the Northern Liberties and Southwark, as contain any matters capable by putrefaction of producing the disease, and to have them removed.

“ THIRDLY,

“ THIRDLY, We earnestly recommend the frequent washing of all impure parts of the city in warm and dry weather, by means of the pumps, until the water of the Schuylkill can be made to wash all the streets of the city; a measure which we conceive promises to our citizens the most durable exemption from bilious fevers of all kinds, of domestic origin.

“ FOURTHLY, To guard against the frequent source of yellow fever from the noxious air of the holds of ships, we recommend the unlading all ships, with cargoes liable to putrefaction, at a distance from the city, during the months of June, July, August, September and October. To prevent the generation of noxious air in the ships, we conceive every vessel should be obliged by law to carry and use a ventilator, and we recommend in a particular manner the one lately contrived by Mr. Benjamin Wynkoop.—We believe this invention to be one of the most important and useful, that has been made in modern times, and that it is calculated to prevent not only the decay of ships and cargoes, but a very frequent source of pestilential diseases of all kinds, in commercial cities,

“ In thus deciding upon the nature and origin of our late fever, we expect to administer consolation
to

to our fellow citizens upon the cause of our late calamity ; for in pointing out its origin to the senses, we are enabled immediately and certainly to prevent it. But while the only source of it is believed to be from abroad, and while its entrance into our city is believed to be in ways so numerous and insidious, as to elude the utmost possible vigilance of health officers, we are led in despair to consider the disease as removed beyond the prevention of human power or wisdom. It has been by adopting measures, similar to those we have delivered for preventing pestilential diseases, that most of the cities in Europe, which are situated in warm latitudes, have become healthy in warm seasons, and amidst the closest commercial intercourse with nations and islands constantly afflicted with those diseases. The extraordinary cleanliness of the Hollanders was originally imposed upon them, by the frequency of pestilential fevers in their cities. This habit of cleanliness has continued to characterize those people, after the causes which produced it, have probably ceased to be known.

“ In thus urging a regard to the domestic sources of the yellow fever, we are actuated by motives of a magnitude far beyond those which determine ordinary questions in science. Though we feel the strongest conviction that the value of property, the
increase

increase of commerce and the general prosperity of our city, will be eminently forwarded by the adoption of the foregoing propositions, yet these are but little objects in our view, when compared with the prevention of the immense mass of distress, which never fails to accompany a mortal epidemic. We consider ourselves moreover as deciding upon a question, which is to affect the lives and happiness, not only of the present inhabitants of Philadelphia, but of millions yet unborn, in every part of the globe.

“ We are with the greatest respect,
Sir,

Your very humble servants,
BENJAMIN RUSH,
CHARLES CALDWELL,
WILLIAM DEWEES,
JOHN REDMAN COXE,
PHILIP SYNG PHYSICK,
JAMES REYNOLDS,
FRANCIS BOWES SAYRE,
JOHN C. OTTO,
WILLIAM BOYS,
SAMUEL COOPER,
JAMES STUART,
FELIX PASCALIS,
JOSEPH STRONG.”

Dec. 1, 1797.

A few days after the publication of this letter, the following memorial, and narrative of facts, were presented to the legislature of Pennsylvania by the college of physicians.

MEMORIAL OF THE COLLEGE OF PHYSICIANS.

“ To the Senate and House of Representatives of the Commonwealth of Pennsylvania, the Memorial of the College of Physicians of Philadelphia respectfully represents :

“ THAT your memorialists, deeply affected with the calamities produced by the disease which has recently occurred amongst us, are impelled by a sense of duty to their fellow citizens and themselves, to inform you, that they consider the laws which were enacted for the purpose of preserving this city from malignant, contagious disorders, as very imperfect.

“ The subject being of immense importance, they hope to be excused for stating their sentiments with respect to it at large.

“ They are of opinion, that the disease which produced so much mortality and distress in the year

1793,

1793, was imported into this city from the West Indies; and they are confirmed in this sentiment, by the circumstances attending the disease of this year, which they consider as of the same nature, and derived from the same source.

“ Some of their most important reasons for this opinion, are as follow:—The disease in question is essentially different from the fevers that occur in this climate, and which originate from domestic causes. This difference particularly regards the general progress of the symptoms, and the mortality, as is evident upon a comparison of its history with that of the ordinary diseases of this city.

“ A disease which resembles the fever of 1793 and of this year, in many important points, has long been known in the West Indies, and those parts of America situated between the tropics; and in seven or eight different instances in which a similar disease has occurred in the United States, in the course of this century, there is good reason to believe that it was derived from those countries. In most of the instances, the original history of the disease contains the information that it was imported. In some cases, the infection can be traced to the imported clothing of persons who died in the West Indies. In most of the cases where the im-
portation

portation cannot be ascertained, the first appearance of the disease has been, as in the other instances, in the neighbourhood of the shipping, or among persons connected with vessels.

“ The circumstances attending the fever of this year are extremely in point; and the narrative which accompanies this, will, we trust, satisfy you that it was imported.

“ The disease in question, commences invariably in our sea-ports, while inland towns, equally exposed to the ordinary causes of fever, escape; and in the two last instances of its occurrence in Philadelphia, the suburbs and the country adjacent, were more healthy than usual at the same season; and at the commencement of the disease, all the parts of the city, excepting the small spaces to which it was confined, were remarkably healthy.

“ It exists in the West Indies, particularly in time of war, when great numbers of strangers are to be found there; and reference to dates will shew, that in most of the instances of the occurrence of the disease in the United States, there has been war in the West Indies.

“ Your

“ Your memorialists are aware, that cases may be adduced where the disease has occurred in persons, who were not known to have been exposed to imported contagions, but such is the subtle nature of this power, that it often exists unsuspected; and similar difficulties occur respecting the small-pox, and other contagions, allowed by all to be of foreign origin. There also occur, although very rarely, solitary cases of malignant remitting fevers, the symptoms of which resemble so much the disease in question, that they are often supposed to be the same; but there is this essential difference, that a malignant remittent fever has never been to our knowledge contagious in this climate.

“ The difference of sentiments among physicians, now so much regretted, resembles that which almost always takes place, when the plague is introduced into any of the civilized parts of Europe, where it is not well known. The identity of the disease, its origin and its contagious nature, have been often the subject of controversy. Some physicians have considered it as of domestic origin; but proper health laws, strictly enforced, have latterly protected the commercial parts of Europe from its ravages.

“ With these sentiments of the nature of the disease, your memorialists cannot but regard a proper law

law respecting the subject, as a matter of the greatest importance, and although they are perfectly sensible of the imperfection of the science of medicine, yet from a conviction that physicians are the best informed, as well as the most interested in the subject, they approach you with that respect which is due to your legislative authority, and declare their belief, that the existing health laws of this Commonwealth are not such as are best calculated to obtain the desired end, and that they ought to be improved.

“ Having lately communicated in writing to the governor their ideas respecting the best methods of preventing the introduction of contagious diseases, they beg leave to refer you to that communication. At the same time they tender you their professional assistance in framing an efficient law for this purpose; and thus having performed their duty, they hold themselves discharged from all responsibility, on account of the evils which may arise from the present imperfect state of the legislative arrangements respecting this important subject.

By order of the College,
Attest, JOHN REDMAN, *President.*”
 “ THOMAS C. JAMES, *Secretary.*”

“ *Philadelphia, Dec. 5th, 1797.*”

“ *Narrative*

“ Narrative of facts relative to the probable origin, and progress, of the malignant contagious fever which lately appeared at the junction of Penn and Pine streets.

“ THE ship *Arethusa*, Captain Keith, sailed about June 1, 1797, from Port Royal in Jamaica for the Havannah, with slaves; during the passage two men died with a fever, which Mr. Stephen Kingston, a gentleman of this city, who was a passenger on board, and has frequently seen the disease, believes to have been the yellow fever, one having the black vomit. After remaining some days at the Havannah, the vessel proceeded for Philadelphia, and arrived in the stream opposite to Pine street, July 23, 1797. At the capes of Delaware she took on board a pilot, and performed a quarantine of five days at State Island. The pilot was attacked with a fever, the day of their arrival at the city, and went on shore the same day, when he was visited by Dr. Currie, who has been much conversant with the yellow fever, and was so sensible of the resemblance of his symptoms to those of that disease, that he mentioned the case as suspicious, to one of his friends.

“ The *Arethusa* was moored at Mr. Joseph Russell's wharf, outside of two vessels which lay there
when

when she arrived, her crew left her immediately after she was moored, and the next day returned for their clothing, &c. when they crossed and recrossed the above mentioned ships. Two boys only and the captain (who was on board occasionally) composed the crew of the outermost ship, or that immediately contiguous to the *Arethusa*; but the innermost vessel, the brig *Iris* from Oporto, had a crew of the usual number. On the twenty-ninth day of July, five men of this crew were taken ill with fever, and attended by Dr. J. Stuart, who states in his report to the College of Physicians, that the symptoms were similar in all, tho' varying in the degree of violence; four of these recovered, but one died with unequivocal marks of the malignant yellow fever. A servant of George Latimer, Esq. who lived about 100 yards to the north of this vessel, and was frequently on the wharves, was attacked, July 30th, with a fever which was highly contagious and malignant, of which he died in a few days.

“ Mr. N. Lewis, who kept a compting room which was about the same distance from the *Arethusa*, was attacked about the same time, and died also in five days, of a fever which was supposed to be of the same nature.

“ Mr.

“ Mr. Dominick Joyce, who was much engaged on board a ship near the Arethusa, was attacked, August 3d, with a fever of the same kind, but recovered. A man who lived in a store on the south side of Pine street, about 150 yards from the river, was attacked with a malignant fever about this time, and died in a few days.

“ About the 6th of August, Mr. Ferguson, whose yard adjoined the wharf where the Arethusa and Iris lay, was attacked with a malignant fever, and the same day Mr. John Plankinhorn's girl, who lived nearly opposite to Mr. Ferguson's across Penn street, and worked in a yard which was situated very near to the above mentioned store in Pine street, was also attacked with fever, they both died on the fifth or sixth day after the attack, Mrs. Ferguson with very suspicious, and Mr. Plankinhorn's girl, with complete and unequivocal symptoms of the yellow fever. In this manner the disease continued to spread, so that by the middle of August, or within three weeks from the arrival of the Arethusa, above ten persons had died, who either lived or were engaged in business within 300 yards of the Arethusa, and this at a time when the other parts of the city were so healthy, that it is probable all the other deaths which occurred in it were not equal in number to those which occurred

curred in this small district. After this the disease gradually extended itself to Southwark, and at the same time became thinly scattered through the city, where its destructive effects are but too well known.

December 26th, 1797.

Facts relative to the sickly state of the ship HIND.

“ It appears from the depositions of Francis Tow, Nicholas Benson, and William Cooper, seamen on board the armed ship Hind, taken before chief justice M^cKean, that about the beginning of July 1797, the Hind sailed from Port-au-Prince, bound to Philadelphia, with a cargo of sugar and coffee, and with 43 passengers; of which number 23 were whites and twenty coloured persons, that they touched at Cape Nichola Mole, where they remained eight days and discharged a part of their cargo, in lieu thereof taking in a quantity of stone ballast; during the time they lay at the Mole the passengers were occasionally on shore. It would appear that they left the Mole between the 12th, and 15th, of July, and arrived at this port, after a passage of twenty or twenty-one days. About three or four days after their departure from the Mole, five or six white persons and one negro of the passengers were attacked with fever, the white persons so attacked

tacked were observed to become very yellow. During the passage four other coloured persons and five of the crew fell ill of fever: one or two of the latter number, after the vessel entered the capes of Delaware; but only a coloured boy and child died during the passage, and were thrown overboard after the vessel entered the river. Upon the arrival of the vessel opposite to the Marine Hospital, in consequence of orders from the captain, four sick persons were secreted and did not come under the inspection of the Physician of the Port; exclusive of these, two women were sick in the cabin. After passing the Fort one of the seamen was taken ill, went on shore, and was afterwards carried to the Marine Hospital; and two other persons were taken on shore sick. So far go the depositions.

“ From information obtained from the Health Office, it appears, that the Hind was examined at the Fort on the 2d, and arrived at Philadelphia on the 4th of August; and that Mr. Doughty, one of the Inspectors of the Health Office, sent to the Marine Hospital on the 13th of August, Peter Malosio, one of the crew of the Hind then residing in Love Lane, and on the 14th a Portuguese from near the junction of Penn and South streets, who had been landed there; and that another person was sick of a suspicious fever at Mrs. O'Connor's,

in Almond near Front street. Both these were from on board the Hind, and the Portuguese above-mentioned had been visited by Dr. Currie, who declares his disease to have been yellow fever."

To these publications, the following reply was addressed to the Governor of the state.

" Letter from the ACADEMY OF MEDICINE to THOMAS MIFFLIN, Esq. Governor of the State of Pennsylvania.

SIR,

" THE Physicians, who answered your letter of the sixth of November, respecting the origin and nature of the epidemic fever which lately prevailed in the city of Philadelphia, having, with others of their medical brethren, associated themselves under the name of " The Academy of Medicine of Philadelphia," beg leave, in that capacity, to address you again upon the interesting subject of the said letter.

" The academy have seen, with regret, a memorial, from the college of physicians of the city, to the legislature, accompanied with a " narrative of facts" intended to establish an opinion contrary to that, which

which the subscribers of the answer to your letter, conceive they had therein proved in the most irrefragable manner.

“ As the opinion appears to us replete with danger to the lives of our fellow citizens, and to the prosperity of our city, we deem ourselves bound by the principles of humanity, and the obligations of patriotism, to make a few remarks upon it ; and to shew that it is founded upon partial investigations, and mistaken ideas of the nature of the yellow fever.

“ The college have ascribed the origin of the late epidemic to the ships *Arethusa*, captain Keith, from Havanna, and *Hind*, captain Patot, from Port-au-Prince. The memorial sets forth that, “ the ship
 “ *Arethusa*, capt. Keith, sailed about the first of
 “ June, from Port Royal in Jamaica, for the Ha-
 “ vannah with slaves ; during the passage two men
 “ died with a fever, which Mr Stephen Kingston, a
 “ gentleman of this city who was a passenger on
 “ board, and has frequently seen the disease, be-
 “ lieves to have been the yellow fever, one having the
 “ black vomit.” Admitting the fact, which rests merely upon the belief of a person not medically educated, yet the arguments hereafter to be adduced, it is presumed, will destroy the probability of its being introduced by this ship. That the island of Ja-
 maica

maica was healthy at the time the *Arethusa* sailed, appears from the answers given by the captain of the said ship, to the official interrogatories filed in the Health-Office relative to this subject; and from those of capt. Henry Latimer, of the brig *Maria*, who sailed from the above port about the same day. That the disease of which the men died was not contagious is rendered probable by its not having spread among the passengers or crew who amounted to seventy, all of whom arrived in good health at the Havanna on the 21st of June. But supposing the disease to have been of a contagious nature, the precautions taken after the deaths, would have been sufficient to have destroyed any remains of the contagion. From Mr. Brien's deposition it appears, that "The clothing, bedding and articles belonging to the deceased were thrown overboard, and their births cleansed and well sprinkled with vinegar." And we are authorized further to assert, that the ship underwent such a complete cleansing while at the Havanna, after landing the slaves, as prudence would dictate to a ship-master, in every similar case. The ship, moreover, after lying at the Havanna fourteen days, during which time all on board remained well, arrived opposite the Health-Office on State Island, on the eighteenth of July. During the whole of this passage her hatches were constantly open, whereby the most ample means for a free current

rent of air were afforded, which could not fail to dissipate any remains of contagion which could possibly have continued after her former purifications. The ship performed five days quarantine opposite the health-office, on State-Island, during which time the bedding was every day exposed upon deck and was once washed by a rain. The crew moreover remained well, except the captain, who was affected with a rheumatism, and the mate, with a lax, both of whom soon recovered. The pilot who conducted this ship was attacked on the twenty-third of July, and allowing three days for the time he had been exposed to the contagion before his fever appeared, there will remain forty-six days from the time the ship left Kingston till her arrival in our river. From the known laws of the contagion of the yellow fever, and the distance of time at which it usually appears, after persons have been exposed to the contagion, the academy conceive it scarcely possible, if any portion of contagion had been left by the before-mentioned persons, that it would have remained inactive for above forty-six days, exposed as the crew were to the exciting causes of fatigue, night watching and the vicissitudes of the weather. The perfect freedom from disease which all on board enjoyed, must therefore be admitted as a proof that no contagion did exist, and consequently that the pilot and others could not have derived their disease from that source.

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“ The college further state that “ the pilot was attacked with a fever, the day of his arrival with the ship at the city, and went on shore the same day, when he was visited by Dr. Currie, who has been much conversant with the yellow fever, and who was so sensible of the resemblance of his symptoms to those of that disease, that he mentioned the case as suspicious to one of his friends.”

“ In addition to the arguments, before adduced, for supposing that the pilot could not have taken his disease from any remains of contagion on board, the academy further remark, that the source from whence he derived his disease was probably, and as he believes, from a current of cold air during the night, while sleeping in the open cabin of the ship, after a warm day, which preceded that on which the quarantine of the ship was ended. His indisposition came on the next morning, and soon after his arrival in this city, a violent fever succeeded, of a kind, which we every year observe in Philadelphia, from sudden changes of the weather, in the summer and autumnal months, and especially from similar exposure on the river. It may be added, that he was but a few days confined, and that none of his friends who nursed him, or others who daily visited him were affected by him; neither were there any precautions taken to avoid contagion, nor the least intimation of dan-

ger given to those who constantly attended him. Under all the circumstances which have been mentioned, it is impossible to believe that the pilot's disease was derived from an imported contagion.

“ The college in their memorial have insinuated that the crew of the brig *Iris* were infected with the yellow fever by the crew of the *Arethusa* passing across her deck to the wharf. If this had been true or even possible, it must have been in one of the three following ways: 1st. By the actual sickness of the crew; 2d. By the contagion blowing off their clothes in passing over the decks; or 3d. By the contagion, which had adhered to the timbers of the *Arethusa*, being conveyed by the wind over two intermediate vessels to the *Iris*.

“ It is not pretended that any of the crew of the *Arethusa* were indisposed, therefore the first supposition must be rejected. They could not have infected the crew of the *Iris* in the second mode, because it is not alleged that they stopped a moment when passing over her deck. But admitting they did, it cannot be believed, that a disease could be conveyed by their clothes, to the crew of the *Iris* in the open air, when it is well known, that those clothes when worn, and even washed in confined lodging houses afterwards, did not infect a single person, in
any

any part of the city. Lastly, it is highly improbable that the crew of the *Iris* could have been infected by the timbers of the *Arethusa*, because, we have no proofs that the contagion of the yellow fever ever adheres to wood ; but admitting this to be possible, we reject the probability of it, because, as we before observed, the ship had been well cleansed and freely ventilated on her voyage from the Havannah to Philadelphia. We are the more disposed to ascribe the destruction of contagion, if any had existed, to the pure air of the ocean, from having so repeatedly observed the effects of country air in weakening or destroying it in the United States. The academy are moreover authorised by Dr. Stewart to assert, that none of the family, with whom the five men of the *Iris* boarded, were infected ; but that they preserved their health the whole time of the prevalence of our late epidemic.

“ As the *Iris* lay at Pine street wharf, and entirely within the limits of the exhalations from the snow Navigation, to which we formerly referred, it is highly probable that they were infected thereby, and that the disease was excited by their intemperance in the use of Port wine, with which the brig was loaded, and by the practice of bathing themselves in the river while under the influence of liquor, and heated by labour. From this conduct it is

is conceived by the Academy, the peculiar violence of their diseases can be accounted for, as a similar cause is always ranked among the most powerful, in the production of malignant cases of bilious yellow fever; and Dr. Stewart authorises the Academy to assert his belief, that the fever, in the cases he communicated to the college, proceeded from exhalation; and he thinks most probably, that of the snow Navigation. *

“ Two of the other persons mentioned by the college, *viz.* Mr. Lewis and Mr. Latimer’s man, said to have been infected by the *Arethusa*, were much nearer the snow Navigation than the *Iris* was, and were exposed to the exhalation from the former vessel. With regard to Mr. Lewis, we shall observe that he was absent from the city when the *Arethusa* arrived, and did not return until six days afterwards, which was on the thirtieth of July. On the first of August, the day of his attack, it is known that he complained very much of the
stench

* Though at an early period of our late epidemic, Dr. Stewart suspected that the crew of the brig *Iris* were infected by an intercourse with that of the ship *Arethusa*, yet, a farther investigation and ascertainment of facts, have since satisfied him that this was not the case, but that they most probably, as above stated, derived their disease from foul air issuing from the hold of the snow Navigation.

stench of the snow Navigation, which had now pervaded the whole neighbourhood, and expressed great concern at her being permitted to remain at the wharf. The Academy are authorised, by Mr. Dominick Joyce, to express his surprise at the assertion of his having taken his fever from the Arethusa; for, though his business led him to the neighbourhood of that ship, yet he was still within the sphere of the extent of the foul air from the snow Navigation, and he acknowledges he was almost every day upon the wharf at which this vessel lay, and from which he, in all probability, derived his disease.

“ As all the other persons whose cases are mentioned by the college, lived within the extent of the exhalation from the snow Navigation, there can be little doubt, but that they derived it from the same air which affected the persons, whose names they have mentioned. It is remarkable, that the disease was in no instance propagated from any of them.

“ The academy have good reason to believe, that the persons who were indisposed on board the armed ship Hind, after her arrival, derived their diseases from the noxious air of the snow Navigation, in common with the persons who were affected on board the Iris, and in the neighbourhood of Mr. Latimer's

Latimer's wharf. It appears that none of them propagated the disease to any of their attendants in the city, or in the hospital at State Island, to which place some of them were sent. It is well known, moreover, that many citizens repeatedly visited and spent whole days on board this vessel, none of whom were indisposed in consequence of it.

“ From the depositions of the supercargo and of the pilot of the Hind, it will likewise appear, that the whole of the testimony of the three boys is disproved, except as to some unimportant particulars.”

“ We are unable to give credit to the traditional rumours of the foreign origin of the yellow fever, in any part of the United States, inasmuch as from the inaccuracy of the few records which have been preserved, of the places from whence it was said to be derived, and of the manner in which it was said to have been introduced into our country, we have reason to conclude they were assumed without sufficient investigation. Had the proper steps been taken at all times to investigate its origin, it is probable it would have been discovered, in most cases, to have been the offspring of domestic putrefaction. We cannot close the arguments against
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the importation of the yellow fever, without remarking, that many recent facts and observations render it probable, that the reports of its contagious nature have been exaggerated, and that it is not so often propagated by contagion as has been supposed, more especially in warm weather, when sick rooms are open night and day, to the constant accession of fresh air.

“ We observe in the memorial of the college of physicians an assertion, that the yellow fever “ Is “ essentially different from the fevers that occur in “ this climate, and which originate from domestic “ causes :” but as no proofs are adduced in favour of that assertion, we shall rest our opinion of the original sameness of both those states of fever, upon the facts and arguments which were stated in our former communication. We shall only observe, that the idea maintained by the college, has been exploded by some of the most distinguished writers upon tropical diseases ; and by most of the American physicians of the southern states, who constantly consider and treat both the common bilious fever, and its higher grade, called yellow fever, as the same disease, varying only in violence.

“ The academy observe also, with surprise, another assertion made by the college, that “ The disease “ in

“ in question, invariably commences in our sea-ports, while inland towns, equally exposed to the ordinary causes of fever, escape.” To this we reply, it is well known, that in various parts of the United States, remote from sea-ports, precisely the same disease, with all its characteristic symptoms, has frequently prevailed.

“ The college in their narrative have taken no notice of the origin of the yellow fever in Kensington, nor at and near Red-Bank upon the eastern shore of the Delaware. Its origin in the former of those places from the noxious air emitted from the putrid coffee of the ship *Huldah*, and in the latter from marsh exhalation, we conceive to be fully established by the documents communicated in our appendix. * The college have also observed a total silence in their report respecting those cases of yellow fever, which appeared in our city, before the arrival of the *Arethusa*, *Hind*, or *Navigation*. These cases were evidently derived from some of the numerous sources of exhalation, from putrid substances in and about the city. They were attended by Doctors *Rush*, *Phyick*, *Caldwell*, and *Pascal*.

“ We

* See Appendix (C.)

“ We cannot take leave of this important subject without expressing our earnest desire for its candid and close examination, by the legislature of the state.

“ Facts and arguments similar to those we have urged, have produced a conviction of the domestic origin of the yellow fever, in Boston, New York, Baltimore, Norfolk and Charleston, and many of the other towns of the United States. This conviction has been followed by measures, in New York, which promise in future years an exemption from the disorder.

“ With ardent wishes for the prevalence of truth, upon this important subject, in the capital of the United States, we have the honor to add our most respectful wishes, for your health and happiness.

“ *Signed by order of*
The Academy of Medicine of Philadelphia.

“ *March 20, 1798.*

PHILIP SYNG PHYSICK, *President.*
FRANCIS BOWES SAYRE, *Secretary.”*

“ *To THOMAS MIFFLIN, Esqr.*
Governor of Pennsylvania.”

APPENDIX.

“ Appendix.



(A)

“ IN several interesting particulars, respecting the origin of the epidemic of 1797, misrepresentations of facts have much deceived the public mind. These misrepresentations, we believe to have been entirely the result of an easy credulity, disposed to rest satisfied with popular report, and not of any settled intention to mislead. They have been most striking and fallacious in the accounts propagated, respecting the origin of the disease in Kensington, and at Red-Bank, on the Jersey shore of the river Delaware.* To be able the more effectually to counteract the pernicious influence of such misstatements, the academy of medicine have found it necessary, to set on foot particular investigations. The result of these, they now beg permission to submit, in the form of a few documents, to the candid consideration of the public.

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* On the subject of the true source of the epidemic, in these two situations, the public are by no means at present in possession of accurate information.

“ It is known to have been very generally reported, and almost as generally believed, that the late epidemic was introduced into Kensington by Mr. John Brufter, who was said to have received the infection by going on board the armed ship Hind, from Port-au-Prince. It is true, that Mr. Brufter was, at least, among the first (if not, indeed, himself the very first) who was attacked by this disease in Kensington, in the summer of 1797; but that he could not possibly have derived his illness from any intercourse with the ship Hind, is a truth unequivocally established by the following documents, particularly by the affidavit of Michael Lynn.



“ D O C U M E N T.

“ *Proofs of the disease, occurring from exhalation in Kensington; from marshy grounds; and from the hold of a ship, by Dr. Cox.*

“ FROM the books kept at the Merchants' Coffee-house, it appears that the British armed ship, Hind, Francis Patot commander, from Port-au-Prince, was seen below the Fort on the 2d of August; and at ten o'clock of the same day she came within sight; and lay off the Fort for examination.

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“ The usual questions were this day (2d of Aug.) proposed, by the health-officer, to the commander, as appears by the paper preserved on the files at the health-office in this city. She came up to the city on the 3d; and entered at the health-office on the 4th of the month.

“ As no mention is made, previously, of her being seen in the river; the probability is that she had a speedy passage up the Delaware.

“ The person who first had the yellow fever in Kensington, was a young man of the name of John Brufter. He is said to have taken the disease by having been on board the Hind; and through him, the fever was said to have been introduced into Kensington. Upon an examination into dates, this is altogether impossible: Brufter died on the 2d of August, after an illness of four days and four hours, according to his father's account, which brings the commencement of his attack to the 29th July, or four days *previously* to the arrival of the Hind at the Fort. Exclusively of this fact, I have added the affidavit of Michael Lynn, to prove that he did not go on board of any vessel in a voyage down the river to Reedy Island. Some other source for his disease must then be looked for; and this I derive from the marshy exhalations (arising from the

low grounds and meadows on one or both sides of the river) to which he was exposed in his passage in a small schooner, to and from Reedy Island in the middle and close of July, aided by imprudent exposure, by sleeping upon the wet deck of the vessel.

“ Wm. Reed, who died on the 5th of August, after seven days illness, appears in all probability to have derived his disease from some of the *local* sources which are numerous in and about Kensington; although if common report had been credited, we should have ascribed it to the picking up of a cask which was said to have been thrown from the Hind. As, however, he died on the 5th, after seven days illness; the story is altogether impossible, as it brings the commencement of the disease to the 29th of July, or four days preceding the arrival of the Hind. The same sources, which in Kensington, commonly produce in the autumnal months, remittents and intermittents, have this season by the peculiar constitution of the atmosphere, (whatever that may be owing to) raised those diseases to the more violent grade of yellow fever.

“ To these *local* sources I would also without hesitation ascribe many of those cases which occurred

in Kensington, and which were all asserted to be traced to contagion.

“ In that range of houses, extending northward from the bridge over Kohocking creek, and to the west of the main York road, not less than six or seven people died of the yellow fever. These houses, it will be recollected, are bounded on the west by that large portion of low marshy ground to the northward of the bridge; and from this abundant source of exhalation, I think it most rational to deduce the seeds of the fever which occurred there. And this is rendered much more probable by the collateral evidence, of the same fever having existed in the families of Mr. Boudinot and Mr. Leaming, near the Frankfort road, where low and marshy grounds afford ample origin to those noxious miasmata which produce intermitting and remitting fevers. The straggling manner also, in which the disease occurred in Kensington, renders it more probable that it originated from *local* sources, than that it was introduced and spread through the medium of contagion.

“ The next persons who were attacked in Kensington, were in the family of Mr. Joseph Bowers. These appear to have received the disease from the noxious miasmata originating in the hold of a ship called

called the *Huldah*, which went up to Kensington to clear out at Mr. Bowers' wharf, after discharging her cargo in this city. The following is the statement which I have procured respecting this ship, chiefly from the house of Summerl and Brown, to whom she was consigned.

“ The ship *Huldah*, captain William Warner, sailed from this port for Hamburg, on the 18th of October, 1796, laden with coffee, sugar, and furs. After landing her cargo, she does not appear to have cleared out her ballast, &c. but sailed from Hamburg for this place on the 11th of April, 1797, laden with hemp, iron, cordage, dry goods, glass, and brandy. She arrived at New York on or about the 1st day of July, where she discharged 109 pipes of brandy. On the 13th, she sailed for Philadelphia, and entered at the health-office on the 17th of the month, having 13 seamen on board in perfect health, which had been the case during the whole voyage of upwards of ninety days. She discharged her cargo at Vannuxem's wharf, between Arch and Race streets, and on Sunday the 13th of August, she was carried to Mr. Bowers' wharf at Kensington, by the mate and one of the sailors, (Joseph Way of Wilmington, nephew to the late Dr. Nicholas Way, of this city) assisted by Nicholas Painter of Kensington. They proceed-
ed

ed to clear her out the following day, August 14th. After getting through a quantity of sand, which lay above the ballast, so nauseous and offensive a smell proceeded from her, that the mate was indisposed for several days. Joseph Way was obliged to lay by ; and after drooping some days, he went down to Wilmington, and there died, with a severe attack of the yellow fever, on the same day with his uncle, in this city, *viz.* on the 2d of September.

“ Nicholas Painter and Christopher Rush, who assisted in cleaning her out, stood the effects of this exhalation till Wednesday, 16th of August ; when they were seized with violent head-ach, especially *above* the eyes ; sickness and vomiting, and pain of the back ; accompanied by fever. Rush says, he has never completely regained his health since that period. He further says, that the smell of the hold of the *Huldah* was so nauseous, that he could not get it out of his nose for several days.

“ Upon investigation it appeared, that the smell proceeded from a quantity of coffee, (which must have escaped during the voyage to *Hamburg*) mixed with the bilge water and sand, and which was in the highest state of vegetable putrefaction ;
being

being very black, and containing worms or maggots nearly two inches in length.

“ Mr. Joseph Bowers’ boy was the first of his family who was attacked. He worked in a schooner which lay along-side of the Huldah, and was seized on Tuesday, the 15th of August, and died on the 22d. Mr. Bowers himself seems to have received the seeds of the disease on Tuesday, the 15th, at which time he was on board the Huldah, and noticed the very offensive smell proceeding from her hold. He sickened on the Sunday following, the 20th of August, and died on the 25th. A maid-servant and two children also had the disease; one of the children died. It is possible that these last, took the disease by contagion from Mr. Bowers or his boy; though I think it more probable, that they derived it from the original source, *viz.* the ship’s hold; as the wharf is not very distant from the house, and as yet we know not the exact limits to which these noxious miasmata may be carried, without losing their baneful influence by dilution with the atmosphere.

Many cases which occurred in Kensington after this period, were, most probably, derived from this source. The accounts of them are altogether wrapt in doubt and supposition. Most of them are said to have

have taken it by contagion from others; but this is rendered highly improbable by the very moderate degree in which this fever has evinced itself to be possessed of a contagious power; and more especially in so airy and extended a village as that of Kensington.

“ It would appear then, from the preceding pages, that the disease as it existed in Kensington, had *three* different sources, *viz.*

“ FIRST; By *exhalation* or *marsh-effluvia*, derived from the low grounds on the banks of the Delaware; as was the case with *Bruster*.

“ SECONDLY; From *exhalation* or *marsh-effluvia*, derived from the local sources of low grounds in, and about Kensington; as evinced in those cases which occurred in the range of buildings, to the westward of the York road: and,

“ THIRDLY; From the *exhalation* or *noxious effluvia*, proceeding from putrefying vegetable matter, in the hold of the ship *Huldah*; as in the cases of Mr. Bowers and his family, and perhaps in others.

“ The

“ The disease, possibly, in some few cases spread by contagion. King, a coffin-maker, who assisted in putting the dead into their coffins, may have derived his disease, of which he died, from this source. It is however problematical ; for he was with others, exposed to those causes which produced it in them.

JOHN REDMAN COXE.”

“ *Philadelphia, Decem- }
ber 1, 1797.*” }

AFFIDAVIT of Christopher Rush.

“ *County of Philadelphia, ss.*

“ Personally appeared before me, Peter Brown, one of the Justices of the Peace, in, and for the county aforesaid, Christopher Rush ; and being duly sworn upon the holy evangelists, did depose, and swear, that, in working on board the ship, *Huldah*, at Joseph Bowers’ wharf, on the 14th of August last, he perceived a most offensive smell on board the said ship, arising from some putrefied coffee in the hold of the ship. That he, the said Christopher Rush, was made sick for several days from

from the said smell, as also were Nicholas Painter and Joseph Way, who worked with said Christopher Rush on board the ship Huldah. He deposeth further, that Joseph Bowers and his man were exposed to the said smell, from working and attending on board the said ship; and further this deponent sayeth not.

his

“ CHRISTOPHER C. R. RUSH,

mark.

“ Taken and subscribed before me, this 30th day of November, 1797.

“ Signed,

“ (Seal)

PETER BROWN.”

A true copy, J. R. Coxe.

AFFIDAVIT of Michael Lynn.

“ *County of Philadelphia, ss.*

“ Personally appeared before me the subscriber, one of the Justices of the Peace, in, and for the county aforesaid, Michael Lynn; who being duly sworn upon the holy evangelists, doth depose and say, that on the 17th day of July last, he accompanied John Bruster from Kensington, at which place the

the deponent resides, down the river Delaware, in a small schooner, and returned home on the 23d day of July, making an absence of six days; during which time, neither the deponent nor the said John Brufter was on board of, or along side of, any ship or vessel whatsoever; and that on the Sunday following, which was exactly one week after their return, John Brufter was taken sick, and died the Thursday following.

“ Signed MICHAEL LYNN.

“ Taken and subscribed before me, this 30th day of November, 1797,

“ Signed,

“ (Seal) PETER BROWN.”

A true copy, J. R. Coxé.

“ Copied from the original documents, in the possession of the secretary of the state of Pennsylvania.

J. R. C.

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(B)

“ The academy of Medicine cannot do otherwise than express their surprise, that the College of physicians, in their researches after the origin of our late epidemic, should have thought it necessary to make the armed ship Hind an object of attention. It is a truth well known, that the fever had prevailed in our city several days previously to the arrival of that vessel;

vessel; and it is, in like manner, a truth which ought to be known, that none of those persons supposed to have been infected by an intercourse with her, communicated their disease to any of their visitants or attendants. Where then, the academy would beg leave to ask, is even the faintest evidence, of the ship *Hind* having been at all instrumental, in the introduction of this disease? There certainly exists none. Nor, in a candid investigation of the subject, does there appear to be ground sufficient to authorise, even the mention of the name of this vessel.

“As the college of physicians appear, however, by their late pamphlet, to have directed to the *Hind*, an undue share of public attention, it has become necessary to make their narrative respecting her, a subject of particular consideration. The only evidence of which that learned body are possessed, respecting the sickly state of this vessel, is derived from the affidavits of three common mariners belonging to her crew; two of whom were nothing more than boys. In opposition to the evidence delivered in these affidavits, we would here beg leave to submit to the public, the affidavit of the supercargo of the *Hind*. The report, delivered in his deposition, is farther corroborated by the joint testimony of three other respectable characters, on board the same vessel.

From

From this document, it will at once appear, on how equivocal a foundation, the college have thought proper to rest this part of their investigation, respecting the origin of the disease in question.

“ AFFIDAVIT of the Supercargo of the Hind.

“ Personally, before me, Hilary Baker, Mayor of the city of Philadelphia, came Thomas Badaraque; who being duly sworn, doth depose and say, that he was supercargo of the ship Hind, captain Patot, from Port-au-Prince to Philadelphia, in the summer of 1797. That they touched at Cape Nichola Mole, and five days after, a child, about six months old, died from teething: that a negro boy, of about nine years of age, died of the scurvy, the day before the pilot came on board. That no other persons were sick during the voyage, except Mr. Campan a passenger, who had been indisposed, before he came on board, with a lax, and other chronic complaints. That no orders were given to conceal any body, upon the arrival of the ship, by the captain, from the physician at the fort.

T. BADARAQUE.

Sworn, the 15th day of March, 1798, before me,
HILARY BAKER, Mayor.
“ The

“ The under-signed, passengers on board the ship Hind, at the time alluded to, having been duly sworn, do depose and say, that the facts above related, by Thomas Badaraque, are just and true.

MATHIEU DUPOTEE.

PIER VIDAU.

PONIMIER.

Sworn, the 15th day of March, 1798, before me,
HILARY BAKER, Mayor.

(C)

“ By some, the yellow fever, which prevailed at or near Red-bank, is supposed to have originated from an imprudent communication with the shipping in the river, while others alledge, that it was derived from an intercourse with the city of Philadelphia. That both these allegations, however, are equally unfounded, is a truth, which the Academy of Medicine conceive to be satisfactorily established by the following

“ DOCUMENT, by Dr. Otto.

“ I do hereby certify, that I visited the farms at and in the vicinity of Red-bank, situated on the eastern

eastern shore of the Delaware, for the purpose of investigating the origin of the yellow fever, that raged so violently amongst them, during the late autumn. I sought every possible information from the attending physician, the families who had been attacked, and from their neighbours. Knowing that a disease of this kind might have been derived from domestic sources, from the city of Philadelphia, and, possibly, from the shipping performing quarantine, I was exceedingly particular upon these points of inquiry and investigation. After examining the documents upon this subject, I do not hesitate to pronounce it the offspring of local causes.

“ The most valuable part of these farms consists in meadows, which had been overflowed, for ten or twelve days, by a deluge of rain that commenced on the first of August. The waters gradually disappeared, and deposited a scum that was exceedingly nauseous. The roots of the grass were dead in many places for an acre or more in extent; even six inches below the surface of the earth, they were destroyed—the vegetable putrefaction was great, and the smell arising from it extremely disagreeable. To this source I attribute the disease that prevailed amongst them. Twenty-nine persons were attacked in five families; but so local was the calamity, that, although the neighbours kept up a constant communication,

cation, by visiting the sick rooms, and rendering their services, no person, that these families recollect, was affected with it, in consequence. And there is but one possible case in which it could have been communicated, by any one of these families to any of the others:

My opinion of the local origin of the yellow fever, derives support from its being the idea of the physician who attended the sick, and the universal sentiment of those who have suffered by it. Documents, entering into detail, to establish these, and a variety of other points connected with the disease, are subscribed by all the persons alluded to, and deposited among the records of the Academy of Medicine.

Signed, JOHN C. OTTO.

March 23d, 1798.



There is one assertion by the college of physicians, which has escaped refutation by the academy of medicine. It is said in the memorial of the college, that the yellow fever “exists in the West Indies
“ particularly in the time of war, when great numbers of strangers are to be found there, and reference to dates will shew that in most of the instan-

“ces of the occurrence of the disease in the United States, there has been war in the West Indies.”

It appears that the disease was unknown in the United States during the last war in the West Indies, and that it prevailed but once in America during the war before the last, and that was in Philadelphia in 1762. It ought to be remembered in this place, that the intercourse between the West India Islands and the United States at that time, was of such a nature, as to favour the importation of the fever, much more than it has been since, for American troops who had served with the British army in the West Indies arrived occasionally with the remains of the yellow fever upon them, and yet in no instance was the disease imported by them. The fever in Philadelphia in 1762 was generated by putrid exhalations from the dock near the draw-bridge. I infer this from its prevailing chiefly in that neighbourhood, and from its being rarely contagious when carried into any other part of the city.—It was believed, it is true, at the time, to have been imported. The reader must not be surprised at this traditional error having been adopted by the citizens of Philadelphia without examination, when he recollects that the college of physicians of Philadelphia have twice adopted it after a formal investigation of the origin of the

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the disease, without the least evidence from facts, or principles in support of their opinion.

It is to be lamented that the legislature of the state took no notice of the proofs of the domestic origin of the yellow fever which were laid before them by the academy of medicine. A law was passed to prevent the importation of the disease. It has since been enforced with a rigor which has been expensive and distressing to the commerce of the city. I wish it may not be the means of generating the disease, by obliging ships to remain ten days at State Island in the hot months, with vegetable cargoes putrefying in their holds; or if this should not be the case, I hope the law will not compel the owners of vessels who have been exhausted by the expenses, or sea captains who have been worn down by the fatigue of tedious voyages, to seek a more open port in some of the rival cities of the United States, where just opinions prevail respecting the usual origin of the yellow fever. A belief in the importation of the epidemics of 1793 and 1797 is disgraceful to the science of medicine; and unless man should become retrograde in the use of his reasoning faculties, the records and laws which are intended to establish this belief, will probably be preserved with the laws against witchcraft, as curious monuments of the

weakness of the human understanding, at the close of the 18th century.

I have taken pains to collect an account of all the vegetable and animal matters which, in a state of putrefaction, produce bilious, remitting and malignant fevers. The following is a list of such of them as I have met with in books, or picked up from conversation, and observation.

1. Matters which compose marsh exhalations, and which are supposed to be partly of a vegetable, and partly of animal nature. They are derived from the shores of rivers, creeks and mill-ponds, as well as from low and wet grounds.

2. Cabbage.

3. Potatoes.

4. Pepper.

5. Indian meal.

6. Onions.

7. Mint.

8. Anniseed

8. Anniseed and caraway seed confined in the hold of a ship.

9. Coffee.—“ About the time,” says Dr. Trotter, “ when notice was taken of the putrefying coffee on the wharf at Philadelphia, in the year 1793, a captain of a man of war just returned from the Jamaica station, informed me, that several vessels laden with the same produce came to Kingston from St. Domingo. During the distracted state of that colony, this article, with other productions, had been allowed to spoil and ferment. The evolution of a great quantity of fixed air, or carbonic acid gas, was the consequence; and in these vessels, when opening the hatchways, such was its concentrated state, that the whole of the crew in some of them, were found dead on the deck. A pilot boarded one of them in this condition, and had nearly perished himself.”*

10. Cotton, that had been wetted on board of a vessel that arrived in New York a few years ago from Savannah in Georgia.

11. Hemp, flax, and straw.

12. The

* *Medicina Nautica*, p. 324.

12. The canvass of an old tent.
13. Old books and old paper money that had been wetted, and confined in close rooms and closets.
14. The timber of an old house. A fever produced by this cause is mentioned by Dr. Haller in his *Bibliotheca Medicinæ*.
15. Green wood confined in a close cellar during the summer months. A fever from this cause was once produced in this city in a family that was attended by the late Dr. Cadwallider.
16. The green timber of a new ship. Captain Thomas Bell informed me, that in a voyage to the East Indies in the year 1784, he lost six of his men with the scurvy, which he supposed to be derived wholly from the foul air emitted by the green timber of his ship. The hammocks which were near the sides of the ship rotted during the voyage, while those which were suspended in the middle of the ship retained their sound and natural state. This scurvy has been lately proved by Dr. Claiborne in an ingenious inaugural dissertation published on the 22d of May of the present year, to be a misplaced state of malignant fever. Dr. Lind mentions likewise the

timber

timber of new ships as one of the sources of febrile diseases.

17. The stagnating air of the hold of a ship.

18. Bilge water.

19. The stagnating air of close cellars. To prevent this source of fever, chimneys should always be made in them.

20. The matters which usually stagnate in the gutters, common sewers, docks, and alleys of cities, and in the sinks of kitchens.

21. Air emitted by agitating foul, and stagnating water. Dr. Franklin once derived an intermitting fever from this cause.

22. A duck-pond, and

23. A hog-stye have been known to produce violent bilious fevers in Philadelphia.

Fevers are seldom produced by decayed or putrid animal matters. There are, however, records of their having been generated by the following substances in a state of putrefaction.

1. Human

1. Human bodies that have been left unburied upon a field of battle.
2. A whale thrown upon the seashore in Holland.
3. Locusts.
4. Raw hides confined in stores and in the holds of ships, and
5. The entrails of fish exposed to the heat of the sun.

The following fact communicated to me by Mr. Samuel Lyman, a member of Congress from the state of Massachusetts, shews the importance of attending to the condition of butchers meat in our attempts to prevent malignant fevers.

A farmer in New Hampshire who had overheated a fat ox by excessive labour in the time of harvest, perceiving him to be indisposed, instantly killed him, and sent his flesh to a neighbouring market. Of 24 persons who ate of this flesh, 15 died in a few days. The fatal disease produced by this aliment, fell, with its chief force, upon the stomach and bowels.

The

The gentlemen who subscribed the first letter to the governor of Pennsylvania, have remarked, that an offensive smell is not essential to the nature of those gases which produce fevers. It is possible this smell, by exciting a morbid action in the nose, may prevent their being felt in more vital parts of the body. It would seem further, as if heaven had kindly connected a disagreeable smell with putrefying vegetable and animal matters, on purpose to prompt us to remove or avoid them.

From a review of the numerous and common causes of fever which have been mentioned, we are led again to lament that they have been so long overlooked and neglected by the citizens of Philadelphia. We behold here a melancholy instance of the force of prejudice, prevailing, not only over reason, but over the evidence of the senses themselves. While the inhabitants of our city are looking with terror to the ships which arrive from the West Indies in the summer months, and shunning even the refreshing breezes which fill their sails at the distance of five or six miles, it appears that the true cause of all their pestilential calamities, like the sin of Cain, “lieth at their door.”

I proceed now to say a few words upon the treatment which was used in this fever. It was in general

neral the same as that which was pursued in the fevers of 1793 and 1794.

I began the CURE, in most cases, by BLEEDING, where I was called on the first day of the disease, and was happy in observing its usual salutary effects in its early stage. On the second day, it frequently failed of doing service, and on the subsequent days of the fever, I believe it often did harm; more especially if no other depleting remedy had preceded it. The violent action of the blood-vessels in this disease, when left to itself for two or three days, fills and suffocates the viscera with such an immense mass of blood, as to leave a quantity in the vessels so small, as barely to keep up the actions of life. By abstracting but a few ounces of this circulating blood, we precipitate death. In those cases where a doubt is entertained of such an engorgement of stagnating blood having taken place, it will always be safest to take but three or four ounces at a time, and to repeat it four or five times a-day. By this mode of bleeding we give the viscera an opportunity of emptying their superfluous blood into the vessels, and thereby prevent their collapsing from the sudden abstraction of the stimulus which remained in them. I confine this observation upon bleeding, after the first stage of the disease, only to the epidemic of 1797. It was frequently

quently effectual when used for the first time after the first and second days in the fevers of 1793 and 1794, and it is often useful in the advanced stage of the common bilious fever. The different and contradictory accounts of the effects of bleeding in the yellow fever in the West Indies, probably originate in its being used in different stages of the disease. Dr. Jackson, of the British army, in his late visit to Philadelphia, informed me, that he had cured 19 out of 20 of all the soldiers whom he attended, by copious bleeding, provided it was performed within six hours after the attack of the fever. Beyond that period, it mitigated its force, but seldom cured. The quantity of blood drawn by the Doctor, in this early stage of the disease, was always from 20 to 30 ounces. I have said the yellow fever of 1797 was more malignant than the fevers of 1793 and 1794. Its resemblance to the yellow fever in the West Indies, in not yielding to bleeding after the first day, is a proof of this assertion.

I was struck during my attendance upon this fever in observing the analogy between its MIXED form and the malignant state of the small pox. The fever in both, continues for three or four days without any remission. They both have a second stage in which death usually takes place if the diseases be left

left to themselves. By means of copious bleeding in their first, they are generally deprived of their malignity and mortality in their second stage. This remark so trite in the small pox, has been less attended to in the yellow fever. The bleeding in the first stage of this disease does not it is true destroy it altogether, any more that it destroys an eruption in the second stage of the small pox, but it weakens it in such a manner, that the patient passes through its second stage without pain or danger, and with no other aid from medicine than what is commonly derived from good nursing, proper aliment, and a little gently opening physic,

It is common with those practitioners who object to bleeding in the yellow fever, to admit it occasionally in *robust* habits. This rule leads to great error in practice. From the weak action of predisposing, or exciting causes, the disease often exists in a feeble state in such habits, while from the protracted, or violent operation of the same causes, it appears in great force in persons of delicate constitutions. A physician therefore in prescribing for a patient in this fever, should forget the natural strength of his muscles, and accommodate the loss of blood wholly to the morbid strength of his disease.

In a former work* I hinted at those states of this fever in which bleeding is proper. Dr. Jackson has confirmed me, by his instructing communications upon this subject, in all the remarks which I have published, and has added to them a caution which deserves the attention of practitioners, and that is, to avoid bleeding in the close of a paroxysm of the fever. The debility which accompanies the intermission of the fever is often so much increased by this evacuation, as to endanger life.

The quantity of blood drawn in this fever was always proportioned to its violence. I cured many by a single bleeding.—A few required the loss of upwards of an hundred ounces of blood to cure them. The persons from whom that large quantity of blood was taken were Messieurs Andrew Brown, Horace Hall, George Cummins, J. Ramsay and George Eyre. But I was not singular in the liberal and frequent use of the lancet. The following physicians drew the quantities of blood annexed to their respective names from the following persons, viz.

Dr. Dewees	176 ounces	from Dr. Physick,
Dr. Griffiths	110	from Mr. S. Thomson,
Dr. Stewart	106	from Mrs. M'Phail,
		Dr.

*Medical Inquiries and Observations, vol. iv.

Dr. Cooper	150	from Mr. David Evans,
Dr. Gillespie	103	from himself.

All the above named persons had a rapid and easy recovery, and now enjoy good health. I lost but one patient who had been the subject of early and copious bleeding. His death was evidently induced by a supper of beef-stakes and porter after he had exhibited the most promising signs of convalescence.

I am aware how much I shall detract for the present from the reputation of those physicians whose names are connected with the records of the above facts. But I know them too well to suppose they wish to accommodate to the prejudices of the day, by concealing their modes of practice. Fear and error will not always maintain their ground upon this subject. The objections to copious bleeding in malignant fevers, will sooner or later sleep with the prejudices against bark and opium. Ample justice will then be done to those men who have submitted to a temporary sacrifice of interest and reputation, in order to save the lives of their fellow creatures.

Of PURGING.

From the great difficulty that was found in discharging bile from the bowels by the common modes
of

of administering purges, Dr. Griffiths suggested to me the propriety of giving large doses of calomel without jalap, or any other purging medicine, in order to loosen the bile from its close connection with the gall-bladder and duodenum during the first day of the disease. This method of discharging acrid bile was found useful. I observed the same relief from large evacuations of foetid bile in the epidemic of 1797 that I have remarked in the fever of 1793. Mr. Bryce has taken notice of the same salutary effects from similar evacuations in the yellow fever on board the *Busbridge* Indiaman in the year 1792. His words are, “ It was observable that the more dark coloured, and foetid, such discharges were, the more early, and certainly, did the symptoms disappear. Their good effects were so instantaneous, that I have often seen a man carried up on deck perfectly delirious with *subfultus tendinum*, and in a state of the greatest apparent debility, who after one or two copious evacuations of this kind, has returned of himself, and astonished at his newly acquired strength.” * Very different are the effects of tonic remedies when given to remove this apparent debility. The clown who supposes the crooked appearance of a stick, when thrust into a pail of water, to be real, does not err more against the laws of light than that

* *Annals of Medicine*, p. 123.

that physician errs against a law of the animal œconomy, who mistakes the debility which arises from oppression, for an exhausted state of the system, and attempts to remove it by stimulating medicines.

After unlocking the bowels by means of calomel and jalap in the beginning of the fever, I found no difficulty afterwards in keeping them gently open by more lenient purges. In addition to those which I have mentioned in the account of the fever of 1793, I yielded to the advice of my friend Dr. Griffiths, by adopting the soluble Tartar, and gave small doses of it daily in many cases. It seldom offended the stomach, and generally operated, without griping, in the most plentiful manner.

However powerful bleeding and purging were in the cure of this fever, they often required the aid of a SALIVATION to assist them in subduing it.

Besides the usual methods of introducing mercury into the system, Dr. Stewart accelerated its action by obliging his patients to wear socks filled with mercurial ointment; and Dr. Gillespie aimed at the same thing by injecting the ointment in a suitable vehicle into the bowels in the form of glysters.

The following fact communicated to me by Dr. Stewart, will shew the safety of large doses of calomel in this fever. Mrs. M'Phail took 60 grains of calomel, by mistake, at a dose, after having taken three or four doses, of 20 grains each, on the same day. She took, in all, 356 grains in six days, and yet, says the Doctor, "such was the state of her stomach and intestines, that that large quantity was retained without producing the least griping, or more stools than she had when she took three grains every two hours."

I observed the mercury to affect the mouth and throat in the following ways. 1. It sometimes produced a swelling only in the throat resembling a common inflammatory angina. 2. It sometimes produced ulcers upon the lips, cheeks, and tongue, without any discharge from the salivary glands. 3. It sometimes produced swellings and ulcers in the gums, and loosened the teeth without inducing a salivation. 4. There were instances in which the mercury induced a rigidity in the masseter muscles of the jaw, by which means the mouth was kept constantly open, or so much closed, as to render it difficult for the patient to take food, and impossible for him to masticate it. 5. It sometimes affected the salivary glands only, producing from them a copious secretion and excretion of saliva.

But, 6. It more frequently acted upon all the above parts, and it was then it produced most speedily its salutary effects. 7. The discharge of the saliva frequently took place only during the remission or intermission of the fever, and ceased with each return of its paroxysms. 8. The salivation did not take place in some cases until the solution of the fever. This was more especially the case in those forms of the fever in which there were no remissions or intermissions. 9. It ceased in most cases with the fever, but it sometimes continued for six weeks or two months, after the complete recovery of the patient. 10. The mercury rarely dislodged the teeth. Not a single instance occurred of a patient losing a tooth in the city hospital where the physicians, Dr. J. Duffield informed me, relied chiefly upon a salivation for a cure of the fever. 11. Sometimes the mercury produced a discharge of blood with the saliva. Dr. Coulter of Baltimore gave me an account in a letter, dated the 17th of September, 1797, of a boy in whom an hæmorrhage from the salivary glands excited by calomel, was succeeded by a plentiful flow of saliva, which saved his patient. I saw no inconvenience from the mixture of blood with saliva in any of my patients. It occurred in Dr. Caldwell, Mr. Bradford, Mr. Brown, and several others.

It has been said that mercury does no service unless it purges or salivates. I am disposed to believe that it may act as a counter stimulus to that of the miasmata or contagion of the yellow fever, and thus be useful, without producing any evacuation from the bowels or mouth. It more certainly acts in this way, provided blood-letting has preceded its exhibition. I have supposed the stimulus from the remote cause of the yellow fever to be equal in force to five, and that of mercury, to three. To enable the mercury to produce its action upon the system, it is necessary to reduce the febrile action by bleeding, to two and an half or below it, so that the stimulus of the mercury shall transcend it. The safety of mercury when introduced into the system has three advantages as a stimulus over that of the matter which produces the fever. It excites an action in the system preternatural only in *force*. It does not derange the *natural* order of actions. 2. It determines the actions chiefly to external parts of the body, and 3dly it fixes them when it affects the mouth and throat upon parts which are capable of bearing great inflammation and effusion without any danger to life. The stimulus which produces the yellow fever acts in ways the reverse of those which have been mentioned. It produces violent *irregular* or *wrong* actions. It determines them to internal parts of the body, and it fixes them upon

viscera which bear with difficulty and danger the usual effects of disease. A late French writer, Dr. Fabre, ascribed to diseases a centrifugal, and a centripetal direction. From what has been said, it would seem, the former belongs to mercury, and the latter to the yellow fever.

Considering the great prejudices against blood-letting, I have wished to combat this fever with mercury alone. But for reasons formerly given, I have been afraid to trust to it without the assistance of the lancet. The character of the fever moreover, like that which the poet has ascribed to Achilles, is of “so swift, irritable, inexorable, and “cruel” a nature, that it would be unsafe to rely exclusively upon a medicine which is not only of less efficacy than bleeding, but often slow, and uncertain in its operation, *more especially* upon the throat and mouth.

Let not the reader be offended at my attempts to reason. I am aware of the evils which the weak and perverted exercise of this power of the mind, has introduced into medicine. But let us act with the same consistency upon this subject, that we do in other things.

We do not consign a child to its cradle for life, because it falls in its first unsuccessful efforts to use its legs. In like manner, we must not abandon reason, because in our first efforts to use it, we have been deceived. A single just principle in our science, will lead to more truth in one year, than whole volumes of uncombined facts will do in a century.

I lost but two patients in our late epidemic in whom the mercury excited a salivation. One of them died from the want of nursing; the other by the late application of the remedy.

Of VOMITS.

It was said, a practitioner who was opposed to bleeding and mercury, cured this fever by means of strong vomits. I gave one to a man who refused to be bled. It operated freely, and brought on a plentiful sweat. The next day he arose from his bed, and went to his work. On the 4th day he sent for me again. My son visited him and found him without a pulse. He died the next day.

I heard of two other persons who took emetics in the beginning of the fever without the advice of a physician, both of whom died.

Dr.

Dr. Pinkard informed me that their effects were generally hurtful in the violent grades of the yellow fever in the West Indies.—The same information has since been given to me by Dr. Jackson. In the 2d and 3d grades of the bilious fever, they appear not only to be safe, but useful.

Of DIET AND DRINKS.

The advantages of a weak vegetable diet were very great in this fever. I found but little difficulty in most cases in having my prohibition of animal food complied with before the crisis of the fever, but there was often such a sudden excitement of the appetite for it, immediately afterwards, that it was difficult to restrain it. I have mentioned the case of a young man who was upon the recovery, who died in consequence of supping upon beef-stakes. Many other instances of the mortality of this fever from a similar cause, I believe, occurred in our epidemic, which were concealed from our physicians. I am not singular in ascribing the death of convalescents to the too early use of animal food. Dr. Poissonnier has the following important remark upon this subject. “The physicians of Brest have observed, that the relapses in the malignant fever which prevailed in their naval hospitals, were as
much

much the effect of a fault in the diet of the sick as of the contagious air to which they were exposed, and that as many patients perished from this cause, as from the original fever. For this reason light soups, with leguminous vegetables in them, panada, rice seasoned with cinnamon, fresh eggs, &c. are all that they should be permitted to eat. The use of flesh should be forbidden for many days after the entire cure of the disorder.”*

Dr. Huxham has furnished another evidence of the danger from the premature use of animal food, in his history of a malignant fever which prevailed at Plymouth in the year 1740. “If any one (says the doctor) made use of a flesh, or fish diet, before he had been very well purged, and his recovery confirmed, he infallibly indulged himself herein at the utmost danger of his life.”†

In addition to the mild articles of diet, mentioned by Dr. Poissonnier, I found bread and milk with a little water, sugar, and the pulp of a roasted apple mixed with it, very acceptable to my patients during their convalescence. Oysters were equally innocent, and agreeable. Ripe grapes were de-
voured

* *Maladies de gens de mer*, vol. 1. p. 345.

† *Epidemics*, vol. 11. p. 67.

voured by them with avidity, in every stage of the fever. The season had been favourable to the perfection of this pleasant fruit, and all the gardens in the city and neighbourhood in which it was cultivated, were gratuitously opened by the citizens for the benefit of the sick.

The drinks were, cold water, toast and water, balm tea, water in which gellies of different kinds had been dissolved, lemonade, apple water, barley and rice water, and in cases where the stomach was affected with sickness, or puking, weak porter and water, and cold camomile tea. In the convalescent stage of the fever, and in such of its remissions or intermissions, as were accompanied with great languor in the pulse, wine-whey, porter and water, and brandy and water, were taken with advantage.

Cold water applied to the body, cool and fresh air, and cleanliness, produced their usual good effects in this fever. In the external use of cold water, care was taken to confine it to such cases as were accompanied with preternatural heat, and to forbid it in the cold fit of the fever and in those cases which were attended with cold hands and feet, and where the disease shewed a disposition to terminate in its first stage, by a profuse perspiration. It has lately given me great pleasure to find the same practice

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tice in the external use of cold water in fevers, recommended by Dr. Currie of Liverpool in his medical reports of the effects of water, cold and warm, as a remedy in febrile diseases. Of the benefit of fresh air in this fever, Dr. Dawson of Tortola has lately furnished me with a striking instance. He informed me that by removing patients from the low grounds on that island, where the fever is generated, to a neighbouring mountain, they generally recovered in a few days.

Finding a disagreeable smell to arise from vinegar sprinkled upon the floor after it had emitted all its acid vapor, I directed the floors of sick rooms to be sprinkled only with water. I found the vapor which arose from it to be grateful to my patients. A citizen of Philadelphia whose whole family recovered from the fever, thought he perceived evident advantages from tubs of fresh water being kept constantly in the sick rooms.



Of TONIC REMEDIES.

There were now and then remissions and intermissions of the fever accompanied with such signs of danger from debility, as to render the exhibition of a few drops of laudanum, a little wine-whey, a
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glass of brandy and water, and in some instances a cup of weak chicken-broth highly necessary and useful. In addition to these cordial drinks, I directed the feet to be placed in a tub of warm water which was introduced under the bed clothes, so that the patient was not weakened by being raised from a horizontal posture. All these remedies were laid aside upon the return of a paroxysm of fever.

I did not prescribe bark in a single case of this disease. An infusion of the quassia root was substituted in its room in several instances with advantage.

BLISTERS were applied as usual, but from the insensibility of the skin, they were less effectual than applications of mustard to the arms and legs. It is a circumstance worthy of notice, that while the stomach, bowels, and even the large blood-vessels, are sometimes in a highly excited state, and overcharged as it were with life, the whole surface of the body is in a state of the greatest torpor. To attempt to excite it by internal remedies is like adding fuel to a chimney already on fire. The excitement of the blood-vessels, and the circulation of the blood, can only be equalized by the application of stimulants to the skin. These, to be effectual, should be of the most powerful kind. Caustics might
probably

probably be used in such cases with advantage. I am led to this opinion by a fact communicated to me by Dr. Stewart. A lighted candle which had been left on the bed of a woman whom he was attending in the apparent last stage of the yellow fever, fell upon her breast. She was too insensible to feel, or too weak to remove it. Before her nurse came into her room, it had made a deep and extensive impression upon her flesh. From that time she revived, and in the course of a few days recovered. As a tonic remedy in this fever, Dr. Jackson has spoken to me in high terms of the good effects of riding in a carriage. Patients, he informed me, who were moved with difficulty, after riding a few miles, were able to sit up, and when they returned from their excursions, were frequently able to walk to their beds.

Much has been said of late years in favor of the application of warm olive oil to the body in the plague, and a wish has been expressed by some people that its efficacy might be tried in the yellow fever. Upon examining the account of this remedy as published by Mr. Baldwin, two things suggest themselves to our notice.

1. That the oil is effectual only in the *forming* state of the disease, and 2dly, that it acts chiefly by depleting from the pores of the body. From the unity of the

the remedy of depletion, it is probable, purging or bleeding might be substituted to the expensive parade of the sweat induced by the warm oil, and the smoke of odoriferous vegetables. But I must not conceal here, that there are facts which favour an idea, that oil produces a sedative action upon the blood-vessels through the medium of the skin. The Africans, and the American Indians, protect themselves from fevers in the most sickly situations, by anointing their bodies with oil. Bontius says, the same application is used in the East Indies, for the cure of malignant fevers, after the previous use of bleeding and purging. It seems to have been a remedy well known among the Jews, hence we find the apostle James advises its being applied to the body, in addition to the prayers of the elders of the church.* It is thus in other cases, the blessings of heaven are conveyed to men through the use of natural means.

I have wished the effects of issues to be tried among the prophylactic remedies of the yellow fever. They have prevented the plague in many hundred instances, according to Parilinus, Florentinus, Forestus and several other authors quoted by Diemerbroeck.† Paræus says that all who had ulcers from the venereal disease, or any other cause, escaped it. Dr. Hodges owed his preservation from sickness and death

* Chapter v. verse 14.

† De Peste, p. 103.

death in the last plague in London, to an issue in his leg. He tells us that it always gave him some pain when he was exposed to the contagion, in visiting his patients. The pestilential matter was probably attracted by the artificial weak part in his leg, and thus thrown out of his system.

During the existence of the premonitory symptoms, and before patients were confined to their rooms, a gentle purge, or the loss of a few ounces of blood, in many hundred instances prevented the formation of the fever. I did not meet with a single exception to this remark.

Fevers are the affliction chiefly of poor people. To prevent, or to cure them, remedies must be cheap, and capable of being applied with but little attendance. From the affinity established by the creator between evil and its antidotes in other parts of his works, I am disposed to believe no remedy will ever be effectual in any general disease, that is not cheap, and that cannot easily be made universal.

It is to be lamented that the greatest part of all the deaths which occur, are from diseases that are under the power of medicine. To prevent their fatal issue, it would seem to be agreeable to the order of heaven in other things, that they should be attacked in
their

their forming state. Weeds, vermin, public oppression, and private vice, are easily eradicated and destroyed, if opposed by their proper remedies, as soon as they show themselves. The principal obstacle to the successful use of the antidotes of malignant fevers in their early stage arises from physicians refusing to declare when they appear in a city, and from their practice of calling their mild forms, by other names than that of a mortal epidemic. If every record of the history of man were destroyed, and this instance only of the conduct of physicians preserved, it would be sufficient to establish the depraved character of our species. Tyrants oppress, and heroes butcher their fellow creatures for plunder and fame, but physicians who conceal the existence, or deny the real names of pestilential diseases, often become the means of destroying the lives of thousands, without deriving any material benefit from their inhuman conduct.

I shall now say a few words upon the success of the depleting practice in our late epidemic.

From the more malignant state of the fever, and from the fears and prejudices that were excited against bleeding and mercury by means of the newspapers, the success of those remedies was much less than in the years 1793 and 1794. Hundreds refused

refused to submit to them at the *time*, and in the *manner* that were necessary to render them effectual. From the publications of a number of physicians who used the lancet and mercury in their greatest extent, it appears that they lost but one in ten of all they attended. It was said of several practitioners who were opposed to copious bleeding, that they lost a much smaller proportion of their patients with the prevailing fever. Upon inquiry, it appeared they had lost many more. To conceal their want of success, they said their patients had died of other diseases. This mode of deceiving the public began in 1793. The men who used it, did not recollect, that it is less in favour of a physician's skill to lose patients in pleurifies, colics, hæmorrhagies, contusions, and common remittents, than in a malignant yellow fever.

Dr. Sayre attended fifteen patients in the disease, all of whom recovered by the plentiful use of the depleting remedies. His place of residence being remote from those parts of the city in which the fever prevailed most, prevented his being called to a greater number of cases.

A French physician who bled and purged *moderately*, candidly acknowledged that he saved but three out of four of his patients.

In the city hospital, where bleeding was sparingly used, and where the physicians depended chiefly upon a salivation; more than one half died of all the patients who were admitted. It is an act of justice to the physicians of the hospital to add, that many, perhaps most of their patients were admitted *after* the first day of the disease.

I cannot conclude this comparative view of the success of the different modes of treating the yellow fever, without taking notice that the stimulating mode, as recommended by Dr. Kuhn and Dr. Stevens in the year 1793, was deserted by every physician in the city. Dr. Stevens, with a candor which does honor to his integrity, acknowledged the disease to require a different treatment from that which it required in the West Indies; and several other physicians who had written against bleeding and mercury, or who had doubted of their safety and efficacy in 1793, used them with confidence, and in the most liberal manner, in 1797. It was remarkable that the physicians who used those remedies more sparingly, reprobated in the same language the loss of ten ounces of blood in the fever of 1793, that they did the loss of 100 in the fever of the last year. They forgot likewise in their use of 100 or 200 grains of mercury to excite a salivation, their former execrations of Dr. Young's safe and
simple

simple purge of ten grains of jalap, and ten of calomel.

In the histories I have given of the yellow fevers of 1793 and 1794, I have scattered here and there, a few observations upon their degrees of danger, and the signs of their favourable and unfavourable issue. I shall close the present history, by collecting those observations into one view, and adding to them such other signs as have occurred to me in observing our late epidemic.

Signs of moderate danger, and a favourable issue of the yellow fever.

1. A chilly fit accompanying the attack of the fever. The longer this chill continues, the more favourable the disease.

2. The recurrence of chills every day, or twice a day, or every other day, with the return of the exacerbations of the fever. A coldness of the whole body at the above periods without chills, a coldness with a profuse sweat, cold feet and hands with febrile heat in other parts of the body, and a profuse sweat without chills, or coldness, are all less favourable symptoms than a regular chilly fit, but they indicate less danger than their total absence during the course of the fever.

3. A puking of *green* or *yellow* bile on the first day of the disease is favourable. A discharge of black bile, if it occur on the *first* day of the fever, is not unfavourable.

4. A discharge of green and yellow stools. It is more favourable if the stools are of a dark or black colour, and of a foetid and acrid nature, on the first or second day of the fever.

5. A softness and moisture on the skin, in the beginning of the fever.

6. A sense of pain in the head, or a sudden translation of pain from internal to external parts of the body, particularly to the back. An increase of pain after bleeding.

7. A fore mouth.

8. A white or a yellow tongue.

9. An early disposition to spit freely, whether excited by nature, or the use of mercury.

10. Blood becoming fizy, after having exhibited the usual marks of great morbid action in the blood-vessels.

11. Great

11. Great and exquisite sensibility in the sense of feeling coming on near the close of the fever.

Signs of great danger, and of an unfavourable issue of the yellow fever.

1. An attack of the fever, suddenly succeeding great terror, anger, or the intemperate use of venery.

2. The first paroxysm coming on without any premonitory symptoms, or a chilly fit.

3. A coldness over the whole body without chills for two or three days.

4. A sleepiness on the first and second days of the fever.

5. Uncommon paleness of the face not induced by blood-letting.

6. Constant, or violent vomiting without any discharge of bile.

7. Obstinate costiveness, or a discharge of natural, or white stools.

8. A diarrhœa towards the close of the fever. I lost two patients in 1797 with this symptom who had exhibited a few days before, signs of a recovery. Dr. Pinkard informed me that it was generally attended with a fatal issue in the yellow fever of the West Indies. Diemerbroeck declares, that "scarcely one in an hundred recovered, with this symptom, from the plague." *

9. A suppression of urine. It is most alarming when it is without pain.

10. A discharge of dark coloured and bloody urine.

11. A cold, cool, dry, smooth, or shining skin.

12. The appearance of a yellow colour in the face on the first or second day of the fever.

13. The absence of pain or a sudden cessation of it, with the common symptoms of great danger.

14. A disposition to faint upon a little motion, and fainting after losing but a few ounces of blood.

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* Lib. 1. cap. xv.

15. A watery, glassy, or brilliant eye. A red eye on the 4th or 5th day of the disease. It is more alarming if it become so after having been previously yellow.

16. Imperfect vision, and blindness in the close of the disease.

17. Deafness.

18. A preternatural appetite, more especially in the last stage of the fever.

19. A slow, intermitting, and shattered pulse.

20. Great restlessness, delirium and long continued coma.

21. A discharge of coffee-coloured, or black bile from the stomach after the 4th day of the fever.

I shall conclude this head by the following remarks.

1. The violence, danger, and probable issue of this fever, seem to be in proportion to the duration and force of the predisposing and exciting causes. However steady the former are in bringing on debility,

lity, and the latter in acting as stimulants upon accumulated excitability, yet a knowledge of their duration and force is always useful, not only in forming an opinion of the probable issue of the fever, but in regulating the force of remedies.

2. The signs of danger vary in different years from the influence of the weather upon the disease.

3. Notwithstanding the signs of the favourable and unfavourable issue of the fever, are in general uniform when the cure of the disease is committed to nature, or to tonic medicines, yet they are far from being so when the treatment of the fever is taken out of the hands of nature, and attempted by the use of depleting remedies. We often see patients recover with nearly all the unfavourable symptoms that have been mentioned, and we sometimes see them die, with all those that are favourable. The words of Morellus therefore which he has applied to the plague, are equally true, when applied to the yellow fever. “In the plague our senses deceive us. Reason deceives us. The aphorisms of Hippocrates deceive us.”* An important

* De feb. pestilent. cap. v. “Acutorum morborum incertæ admodum, ac fallaces sunt prædictiones.”

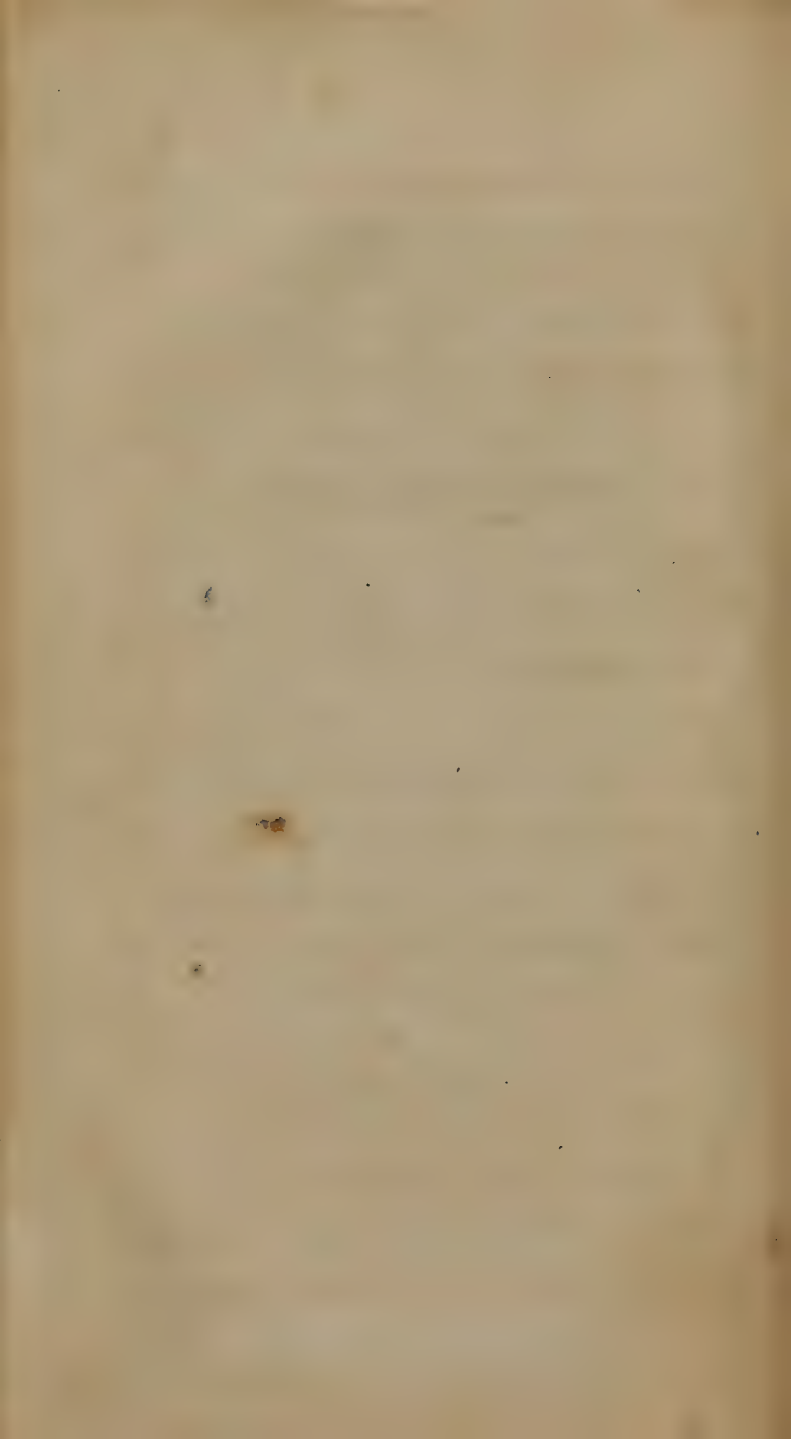
portant lesson may be learned from these facts, and that is, never to give a patient over. On the contrary, it is our duty in this, as well as in all other acute diseases, to dispute every inch of ground with death. By means of this practice which is warranted by science, as well as dictated by humanity, the grave has often been deprived for a while of its prey, and a prelude thereby exhibited of that approaching and delightful time foretold by ancient prophets, when the power of medicine over diseases shall be such, as to render old age the only outlet of human life.



OBSERVATIONS
UPON THE
NATURE AND CURE
OF THE
GOUT



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OBSERVATIONS, &c.

IN treating upon the gout, I shall deliver a few preliminary propositions.

1. The gout is a disease of the whole system. It affects the ligaments, blood-vessels, stomach, bowels, brain, liver, lymphatics, nerves, muscles, cartilages, bones and skin.

2. The gout is a primary disease, only of the solids. Chalk-stones, abscesses, dropical effusions into cavities, and cellular membrane, and eruptions on the skin, are all the effects of a morbid action in the blood-vessels. The truth of this proposition has been ably proved by Dr. Cullen in his first lines.

3. It

3. It affects most frequently persons of a sanguineous temperament ; but sometimes it affects persons of nervous, and phlegmatic temperaments. The idle and luxurious are more subject to it, than the labouring and temperate part of mankind. Women are said to be less subject to it than men. I once believed, and taught this opinion, but I now retract it. From the peculiar delicacy of the female constitution, and from the thin covering they wear on their feet, and limbs, the gout is less apt to fall upon those parts than in men, but they exhibit all its other symptoms, perhaps more frequently than men, in other parts of the body. The remote causes of gout moreover to be mentioned presently, act with equal force upon both sexes, and more of them I believe upon women than upon men.

It generally attacks in those periods of life, and in those countries, and seasons of the year, in which inflammatory diseases are most common. It seldom affects persons before puberty, or in old age, and yet I have heard of its appearing with all its most characteristic symptoms in this city in a child of 6, and in a man above 80 years of age. Men of active minds are said to be most subject to it, but I think I have seen it as frequently in persons of slender and torpid intellects, as in persons of an opposite character. I have heard of a case of gout in an Indian at Pittsburgh, and
I have

have cured a fit of it in an Indian in this city. They had both been intemperate in the use of wine and fermented liquors.

4. It is in one respect an hereditary disease depending upon the propagation of a similar temperament from father to son. When a predisposition to the gout has been derived from ancestors, less force in exciting causes will induce it than in those habits where this has not been the case. This predisposition sometimes passes by children, and appears in grandchildren. There are instances likewise in which it has passed by the males, and appeared only in the females of a family. It even appears in the descendants of families who have been reduced to poverty, but not often where they have been obliged to labour for a subsistence. It generally passes by those children who are born before the gout makes its appearance in a father. It is curious to observe, how extensively the predisposition pervades some families. An English gentleman who had been afflicted with the gout married a young woman in Philadelphia many years ago, by whom he had one daughter. His wife dying three weeks after the birth of this child, he returned to England, where he married a second wife, by whom he had six children, all of whom except one died with the gout before they attained to the usual age of matrimony in Great Britain. One of them

them died in her 16th year. Finally the father and grand-father died with the same disorder. The daughter whom this afflicted gentleman left in this city, passed her life subject to the gout, and finally died under my care in the year 1789 in the 68th year of her age. She left a family of children, two of whom have had the gout. One of them, a lady, has suffered exquisitely from it.

5. The gout is always induced by general predisposing direct or indirect debility.

6. The remote causes of the gout which induce this debility, are, indolence, great bodily labour, long protracted bodily exercise, intemperance in eating, and in venery, acid aliments and drinks, strong tea and coffee, public and domestic vexation, the violent, or long continued exercise of the understanding, imagination and passions in study, business or pleasure, and lastly, the use of ardent, and fermented liquors. The last are absolutely necessary to produce that form of gout which appears in the ligaments and muscles. I assert this, not only from my own observations, but from those of Dr. Cado-gan, and Dr. Darwin, who say they never saw a case of gout in the limbs in any person who had not used spirits or wine in a greater or less quantity. Perhaps this may be another reason why wo-
men,

men, who drink less of those liquors than men, are so rarely affected with this disease in the extreme parts of their bodies. Wines of all kinds are more disposed to produce this form of gout than spirits. The reason of this must be resolved into the less stimulus in the former, than in the latter liquors. Wine appears to resemble in its action upon the body, the moderate stimulus of miasmata which produce a common remitting fever, or intermitting fever, while spirits resemble that violent action induced by miasmata which passes by the blood-vessels, ligaments and muscles, and invades at once the liver, bowels and brain. There is one symptom of the gout in the extremities which seems to be produced exclusively by ardent spirits, and that is a burning in the palms of the hands, and soles of the feet. This is so uniform, that I have sometimes been able to convict my patients of intemperance in the use of spirits, when no other mark of their having taken them in *excess*, appeared in the system.

7. The exciting causes of the gout are frequently a greater degree, or a sudden application of its remote and predisposing causes. They act upon the accumulated excitability of the system, and by destroying its equilibrium of excitement, and regular order of actions, produce convulsion, or irregular morbid

morbid and local excitement. These exciting causes are either of a stimulating, or of a sedative nature. The former are violent exercise, of body or mind, night-watching, and even sitting up late at night, a hearty meal, a fit of drunkenness, a few glasses of claret or a draught of cyder, where those liquors have not been habitual to the patient, a sudden paroxysm of joy, anger, or terror, a dislocation of a bone, straining of a joint, particularly of the ankle, undue pressure upon the foot, or leg, from a tight shoe or boot, an irritated corn, and the usual remote causes of fever. The latter exciting causes, are sudden inanition from bleeding, purging, vomiting and fasting. Cold, fear, grief, excess in venery, and the debility left upon the system by the crisis of a fever. All these causes act more certainly when they are aided by the additional debility induced upon the system in sleep. It is for this reason that the gout generally makes its first attack in the middle of the night, and in a part of the system most remote from the action of the heart, and the energy of the brain, viz. in the great toe, or in some part of the foot.—In ascribing a fit of the gout to a cause which is of a sedative nature, the reader will not suppose that I have departed from the simplicity and uniformity of a proposition, I have elsewhere delivered,* that disease is the effect

* Medical Inquiries and Observations, vol. iv.

fect of stimulus. The abstraction of a natural and habitual impression of any kind, by increasing the force of those which remain, renders the production of morbid, and excessive actions in the system as much the effect of preternatural or disproportioned stimulus, as if they were induced by causes that are externally and evidently stimulating. It is thus in many other of the operations of nature, opposite causes produce the same effects.

8. The proximate cause of the gout as of all other diseases, is morbid excitement, accompanied with irregular action, or the absence of all action from the force of stimulus. There is nothing specific in the morbid excitement and actions which take place in the gout different from what occur in fevers. However varied morbid actions may be by their causes, seats, and effects, they are all of the same, and the time will probably come when the whole nomenclature of morbid actions will be absorbed in the single name of disease.

I shall now briefly enumerate the symptoms of the gout as they appear in the ligaments, the blood-vessels, the viscera, the nervous system, the alimentary canal, the lymphatics, the skin, and the bones of the human body.

I. The

I. The ligaments which connect the bones are the seats, of what is called a legitimate or true gout. They are affected with pain, swelling, and inflammation. The pain is sometimes so acute as to be compared to the gnawing of a dog. We perceive here the sameness of the gout with the rheumatism. Many pages, and indeed whole essays have been composed by writers to distinguish them, but they are exactly the same disease while the morbid actions are confined to this part of the body. They are it is true produced by different remote causes, but this constitutes no more difference in their nature, than is produced in a coal of fire whether it be inflamed by a candle, or by a spark of electricity. The morbid actions which are induced by the usual causes of rheumatism affect, though less frequently, the lungs, the trachea, the head, the bowels, and even the heart, as well as the gout. Those actions, moreover, are the means of a fluid being effused which is changed into calcarious matter in the joints and other parts of the body exactly like that which is produced by the gout. They likewise twist and dislocate the bones in common with the gout, in a manner to be described hereafter. The only difference between what are called gouty, and rheumatic actions, consists in their seats and in the degrees of their force. The debility which predisposes to the gout, being greater, and
more

more extensively diffused through the body than the debility which precedes rheumatism, the morbid actions in the former case, pass more readily from external to internal parts, and produce in both, more acute and more dangerous effects. A simile derived from the difference in the degrees of action produced in the system by marsh miasmata, made use of upon a former occasion, will serve me again to illustrate this part of our subject. A mild remittent, and a yellow fever are different grades of the same disease. The former, like the rheumatism, affects the bones chiefly with pain, while the latter, like the gout, affects not only the bones, but the stomach, bowels, brain, nerves, lymphatics, and all the internal parts of the body.

II. In the arterial system the gout produces fever. This fever appears not only in the increased force or frequency of the pulse, but in morbid affections of all the viscera. It puts on all the different grades of fever from the malignity of the plague, to the mildness of a common intermittent. It has moreover its regular exacerbations and remissions once in every four and twenty hours, and its crisis usually on the 14th day in violent cases. In moderate attacks, it runs on from 20 to 40 days in common with the typhus or slow chronic state of fever. It is common for those persons who consider
the

the gout as a specific disease, when it appears in the above forms, to say, that it is complicated with fever; but this is an error, for there can exist but one morbid action in the blood-vessels at once, and the same laws are imposed upon the morbid actions excited in those parts of the body by the remote causes of the gout, as by the common causes of fever. I have seen two instances of this disease appearing in the form of a genuine hectic, and one in which it appeared to yield to lunar influence in the manner described by Dr. Balfour.* In the highly inflammatory state of the gout the sensibility of the blood-vessels far exceeds what is seen in the same state of fever from more common causes. I have known an instance in which a translation of the gouty action to the eye produced such an exquisite

* The influence of the moon in fevers is not confined to Bengal. Diemerbroeck has the following remark upon it in his treatise upon the plague in Holland, lib. 1. cap. v. "Duobus tribusve diebus, ante et post novilunium, ut et plenilunium, hæc dira lues semper exacerbata fuit, eoque tempore, et plurimos morbos corripiebat, et quos tunc invadebat, illi fere omnes moriebantur." Dr. Pinkard informed me that he had observed persons in Demerara to be more disposed to attacks, and relapses of fever, within the lunar periods than at any other time. From some facts that have lately come to my knowledge, I am satisfied the influence of the full and new moon, is sensibly felt in the fevers of Philadelphia.

quisite degree of sensibility, that the patient was unable to bear the feeble light which was emitted from a few coals of fire in his room, at a time too when the coldness of the weather would have made a large fire agreeable to him. It is from the extreme sensibility which the gout imparts to the stomach that the bark is so generally rejected by it. I knew a British officer who had nearly died from taking a spoonful of the infusion of that medicine while his arterial system was in this state of morbid excitability from a fit of the gout. It is remarkable that the gout is most disposed to assume a malignant character during the prevalence of an inflammatory constitution of the atmosphere. This has been long ago remarked by Dr. Huxham. Several instances of it have occurred in this city since the year 1793.

III. The gout affects most of the viscera. In the brain it produces head-ach, vertigo, coma, apoplexy, and palsy. In the lungs it produces pneumonia vera, notha, asthma, hæmoptysis, pulmonary consumption, and a short hecking cough, first described by Dr. Sydenham. In the throat it produces inflammatory angina. It affects the kidneys with inflammation, strangury, diabetes and calculi. The position of the body for weeks or months on the back, by favouring the compression of the kidneys

neys by the bowels, is the principal reason why those parts suffer so much in gouty people. The strangury appears to be produced by the same kind of engorgement or choking of the vessels of the kidneys, which takes place in the small-pox and yellow fever. Four cases of it are described in the 3d volume of the *Physical and Literary Essays of Edinburgh*, by Dr. David Clerk. I have seen one instance of death in an old man from this cause. The catheter brought no water from his bladder. The late Mr. John Penn formerly governor of Pennsylvania, I have been informed by one of his physicians, died from a similar affection in his kidneys from gout. The catheter was as ineffectual in giving him relief, as it was in the case of my patient. The neck of the bladder sometimes becomes the seat of the gout. It discovers itself by spasm, and a suppression of urine in some cases, and occasionally by an habitual discharge of mucus through the urethra. This disorder has been called by Lieuteaud, "a catarrh of the bladder." But of all the viscera, the liver suffers most from the gout. It produces in it inflammation, suppuration, melena, schirrus, gall-stones, jaundice, and an habitual increased secretion and excretion of bile. These disorders in the liver appear most frequently in southern countries, and in female habits. They are substitutes for a gout in the ligaments, and in the extremities of

of the body. They appear likewise in drunkards from ardent spirits. It would seem that certain stimuli act specifically upon the liver, probably for the wise purpose of discharging such parts of the blood from the body, as are vitiated by the rapidity of its circulation. I have in a former publication,* taken notice of the action of marsh miasmata upon the livers of men and beasts. It has been observed that hogs that live near brewhouses, and feed upon the fermented grains of barley, always discover enlarged or diseased livers. But a determination of the blood to the liver, and an increased action of its vessels, are produced by other causes than marsh miasmata, and fermented and distilled liquors. They appear in the fever which accompanies madness and the malignant fore-throat, also in contusions of the brain, and in the excited state of the blood-vessels which is produced by anger and exercise. I have found an attention to these facts useful in prescribing for diseases of the liver, inasmuch as they have led me from considering them as idiopathic affections, but as the effects only of morbid actions excited in other parts of the body.

IV. The gout sometimes affects the arterial, and nervous systems *jointly*, producing in the *brain*,
coma,

* Medical Inquiries and Observations, vol. iv.

coma, vertigo, apoplexy, palsy, loss of memory, and madness, and in the *nerves*, hysteria, hypochondriasis, and syncope. It is common to say the gout counterfeits all these diseases. But this is an inaccurate mode of speaking. All those diseases have but one proximate cause, and they are exactly the same, however different the stimulus may be, from which they are derived. Sometimes the gout affects the brain and nerves exclusively, without producing the least morbid action in the blood-vessels. I once attended a gentleman from Barbadoes who suffered from this affection of his brain and nerves, the most intolerable depression of spirits. It yielded to large doses of wine, but his relief was perfect, and more durable, when a pain was excited by nature or art, in his hands or feet.

The muscles are sometimes affected by the gout with spasm, with general and partial convulsions, and lastly with great pain. The angina pectoris, or a sudden inability to breathe after climbing a hill, or a pair of stairs, and after a long walk, is sometimes a symptom of the gout. There is a pain which suddenly pervades the head, breast and limbs, which resembles an electric shock. I have known two instances of it in gouty patients, and have taken the liberty of calling it the “aura arthritica.” But the pain which affects the muscles is often of

a more permanent nature. It is felt with most severity in the calves of the legs. Sometimes it affects the muscles of the head, breast and limbs, exciting in them large and distressing swellings. But further; the gout in some cases seizes upon the tendons, and twists them in such a manner as to dislocate bones in the hands and feet. It even affects the cartilages. Of this I once saw an instance in Col. Adams of the state of Maryland. The external parts of both his ears were so much inflamed in a fit of the gout, that he was unable to lie on either of his sides.

V. The gout affects the alimentary canal from the stomach, to its termination in the rectum. Flatulency, sickness, indigestion, pain, or vomiting, usually usher in a fit of the disease. The sick headache, also dyspepsia, with all its train of distressing evils, are frequently the effects of gout concentrated in the stomach. I have seen a case in which the gout, by retreating to this viscus, produced the same burning sensation which is felt in the yellow fever. The patient who was the subject of this symptom died two days afterwards with a black vomiting. It was Mr. Patterson, formerly collector of the port of Philadelphia, under the British government. I was not surprised at these two uncommon symptoms in the gout, for I had long been familiar with

its disposition to affect the biliary secretion, and the actions of the stomach. The colic and dysentery, are often produced by the gout in the bowels. In the southern states of America it often produces a chronic diarrhœa, which is known in some places by the name of the “downward consumption.” The piles are a common symptom of gout, and where they pour forth blood occasionally render it a harmless disease. I have known an instance in which a gouty pain in the rectum produced involuntary stools in a gentleman in this city, and I have heard from a southern gentleman who had been afflicted with gouty symptoms, that a similar pain was excited in the same part to such a degree, whenever he went into a crowded room lighted by candles, as to oblige him to leave it. In considering the effects of the gout upon this part, I am led to take notice of a troublesome itching in the anus which has been described by Dr. Lettsom, and justly attributed by him to this disease.* I have known several cases of it. They always occurred in gouty habits.

Of the above morbid affections of the nerves, stomach and bowels, the hysteria, the sick headache, and the colic, appear much oftener in women than in men. I have said that dyspepsia is a symptom

* Medical Memoirs, vol. iii.

tom of gout. Out of more than 500 persons who were the patients of the Liverpool infirmary and dispensary in one year, Dr. Currie informs us, “ a great majority were females.” †

VI. The gout affects the glands and lymphatics. It produced a salivation of a profuse nature in Major Pearce Butler, which continued for two days. It produced a bubo in the groin in a citizen of Philadelphia. He had never been infected with the venereal disease, of course no suspicion was entertained by me of its being derived from that cause. I knew a lady who had periodical swellings in her breasts, at the same season of the year in which she had before been accustomed to have a regular fit of the gout. The scrophula and all the forms of dropsy are the effects in many cases of the disposition of the gout to attack the lymphatic system. There is a large hard swelling without pain, of one, or both the legs and thighs, which has been called a dropsy, but is very different from the common disease of that name. It comes on, and goes off suddenly. It has lately been called in England the *dumb* gout. In the spring of 1798 I attended Col. Innes of Virginia in consultation with my Edinburgh

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† Medical Reports on the Effects of Hot and Cold Water, p. 215.

Lurgh friend and fellow student, Dr. Jones of the same state. The Colonel had large anasarcaous swellings in his thighs and legs, which we had reason to believe were the effects of an indolent gout. We made several punctures in his feet and ankles, and thereby discharged a large quantity of water from his legs and thighs. A day or two afterwards his ankles exhibited in pain and inflammation, the usual form of gout in those parts. In the year 1794 I attended Mrs. Lloyd Jones, who had a swelling of the same kind in her foot and leg. Her constitution, habits, and the sober manners of her ancestors, gave me no reason to suspect it to arise from the usual remote causes of gout. She was feverish, and her pulse was tense. I drew ten ounces of blood from her, and gave her a purge. The swelling subsided, but it was succeeded by an acute rheumatic pain in the part, which was cured in a few days. I mention these facts as an additional proof of the sameness of the gout and rheumatism, and to shew that the vessels in a simple disease, as well as in malignant fevers, are often oppressed beyond that point in which they emit the sensation of pain.

Under this head, I shall include an account of the mucous discharge from the urethra which sometimes takes place in an attack of the gout, and which

which has ignorantly been ascribed to a venereal gonorrhæa. There is a description of this symptom of the gout in the 3d volume of the Physical and Literary Essays of Edinburgh by Dr. Clark. It was first taken notice of by Sauvages by the name of “*gonorrhæa podagrica*” in a work entitled *Pathologia Methodica*. I have known three instances of it in this city. In the visits which the gout pays to the genitals, it sometimes excites great pain in the testicles. Dr. Whyt mentions three cases of this kind. One of them was attended with a troublesome itching of the scrotum. I have seen one case in which the testicles were affected with great pain, and the penis with an obstinate priapism. They succeeded a sudden translation of the gout from the bowels.

From the occasional disposition of the gout to produce a mucous discharge from the urethra in men, it is easy to conceive that it is the frequent cause of the fluor albus in women, for in them, the gout which is restrained from the feet, by a cause formerly mentioned is driven to other parts, and particularly to that part which from its offices, is more disposed to invite disease to it, than any other. The fluor albus sometimes occurs in females, apparently of the most robust habits. In such persons, more especially if they have been descended from

from gouty ancestors, and have led indolent and luxurious lives, there can be no doubt but the disease is derived from the gout, and should be treated with remedies which act, not only upon the affected part, but the whole system. An itching similar to that I formerly mentioned in the anus, sometimes occurs in the vagina of women. Dr. Lettsom has described it. In all the cases I have known of it, I believe it was derived from the usual causes of the gout.

VII. There are many records in the annals of medicine of the gout affecting the skin. The erysipelas, gangrene and petechiæ are its acute, and tetters, and running sores are its usual chronic forms when it appears in this part of the body. I attended a patient with the late Dr. Hutchinson in whom the whole calf of one leg was destroyed by a mortification which succeeded the gout. Dr. Alexander of Baltimore informed me that petechiæ were among the last symptoms of this disease in the Rev. Mr. Oliver who died in the town of Baltimore about two years ago. In the disposition of the gout to attack external parts, it sometimes affects the eyes and ears with the most acute and distressing inflammation and pain. I hesitate the less in ascribing them both to the gout, because they not only occur in gouty habits, but because they now and then effuse a calcarious matter of the same nature

ture with that which is found in the ligaments of the joints.

VIII. Even the bones are not exempted from the ravages of this disease. I have before mentioned that the bones of the hands and feet are sometimes dislocated by it. I have heard of an instance in which it dislocated the thigh bone. It probably produced this effect by the effusion of chalk-stones, or by an excrescence of flesh in the cavity of the joint. Two instances have occurred in this city of its dislodging the teeth, after having produced the most distressing pains in the jaws.—The long protracted, and acute pain in the face which has been so accurately described by Dr. Fothergill, probably arises wholly from the gout acting upon the bones of the part affected.

I have more than once hinted at the sameness of some of the states of the gout, and the yellow fever. Who can compare the symptoms and feats of both diseases, and not admit the unity of the remote and proximate causes of fever?

Thus have I enumerated proofs of the gout being a disease of the *whole* system. I have only to add under this proposition, that it affects different parts of the body in different people according to the
nature

nature of their congenial, or acquired temperaments, and that it often passes from one part of the body to another in the twinkling of an eye.

The morbid excitement, and actions of the gout, when seated in the ligaments, the blood-vessels, and viscera, and left to themselves, produce effects different in their nature, according to the parts in which they take place. In the viscera they produce congestions composed of all the component parts of the blood. From the blood-vessels which terminate in hollow cavities and in cellular membrane, they produce those effusions of serum which compose dropsies. From the same vessels, proceed those effusions which produce on the skin erysipelas, tetters, and all the different kinds of eruptions. In the ligaments they produce an effusion of coagulable lymph, which by stagnation is changed into what are called chalk-stones. In the urinary organs they produce an effusion of particles of coagulable lymph or red blood, which under certain circumstances, are changed into sand, gravel and stone. All these observations are liable to some exceptions. There are instances in which chalk-stones have been found in the lungs; mouth, on the eye-lids, and in the passages of the ears, and a preternatural flux of water and blood has taken place from the kidneys. Pus has likewise been formed in the joints,

joints, and air has been found in the cavity of the belly instead of water.

Sometimes the 'gout is said to combine with the fevers which arise from cold and contagion. We are not to suppose from this circumstance, that the system is under a peculiar stimulus from the gout. By no means. The symptoms which are ascribed to the gout, are the effects of morbid excitement excited by the cold, or contagion acting upon parts previously debilitated by the usual remote causes of that disease.

From a review of the symptoms of the gout, the impropriety of distinguishing it from its various seats, by specific names, must be obvious to the reader. As well might we talk of a yellow fever in the brain, in the nerves, or in the groin, when its symptoms affect those parts, as talk of *misplaced*, or *retrocedent* gout. The great toe and the joints of the hands, and feet are no more its exclusive seats, than the "stomach is the throne of the yellow fever." In short, the gout may be compared to a monarch whose empire is unlimited. The whole body crouches before it.

It has been said as a reflexion upon our profession, that physicians are always changing their opinions respecting chronic diseases. For a long while they
were

were all classed under the heads of nervous, or bilious. These names for many years afforded a sanctuary for the protection of fraud and error in medicine. They have happily yielded of late years to the name of gout. If we mean by this disease a primary affection of the joints, we have gained nothing by assuming that name, but if we mean by it a disease which consists simply of morbid excitement, invited by debility, and disposed to invade every part of the body, we conform our ideas to facts, and thus simplify theory and practice in chronic diseases.

I proceed now to treat of the METHOD OF CURE.

Let not the reader startle when I mention curing the gout. It is not a sacred disease. There will be no profanity in handling it freely. It has been cured often, and I hope to deliver such directions under this head, as will reduce it as much under the power of medicine, as a pleurisy or an intermitting fever. Let not superstition say here, that the gout is the just punishment of folly, and vice, and that the justice of heaven would be defeated by curing it. The venereal disease is more egregiously the effect of vice than the gout, and yet heaven has kindly directed human reason to the discovery of a remedy which effectually eradicates it from the constitution. This opinion of the gout being a curable disease, is as humane

mane as it is just. ' It is calculated to prompt to early applications for medical aid, and to prevent that despair of relief which has contributed much to its duration, and mortality.

But does not the gout prevent other diseases, and is it not improper upon this account to cure it? I answer, that it prevents other diseases, as the daily use of drams, prevents the intermitting fever. In doing this, they bring on an hundred more incurable morbid affections. The yellow fever carried off many chronic diseases in the year 1793, and yet who would wish for, or admit such a remedy for a similar purpose? The practice of encouraging, and inviting what has been called a friendly fit of the gout as a cure for other diseases, resembles the practice of school boys who swallow the stones of cherries to assist their stomachs in digesting that delicate fruit. It is no more necessary to produce the gout in the feet, in order to cure it, than it is to wait for, or encourage abscesses or natural hæmorrhages, to cure a fever. The practice originated at a time when morbid matter was supposed to be the cause of the gout, but it has unfortunately continued under the influence of theories which have placed the seat of the disease in the solids.

The remedies for the gout naturally divide themselves into the following heads.

I. Such as are proper in its approaching, or forming state.

II. Such as are proper in *violent* morbid action in the blood-veffels, and viscera.

III. Such as are proper in a *feeble* morbid action in the same parts of the body.

IV. Such as are proper to relieve certain local symptoms which are not accompanied by general morbid action, and

V. Such as are proper to prevent its recurrence, or in other words to eradicate it from the system.

I. The symptoms of an approaching fit of the gout are great languor, and dulness of body, and mind, doziness, giddiness, wakefulness, or sleep disturbed by vivid dreams, a dryness, and sometimes a coldness, numbness, and prickling in the feet and legs, occasional chills, acidity and flatulency in the stomach, with an increased, a weak, or a defect of appetite. These symptoms are not universal, but more or less of them usher in nearly every fit of the gout. The reader will see at once their sameness with the premonitory symptoms of fever from cold and contagion,

on, and assent from this proof, in addition to others formerly mentioned, to the propriety of considering a fit of the gout, as a paroxysm of fever.

The system during the existence of these symptoms is in a state of debility. The disease is as yet unformed, and may easily be prevented by the loss of a few ounces of blood, or if this remedy be objected to, by a gentle dose of physic, and afterwards by bathing the feet in warm water, by a few drops of the spirit of hartshorn in a little sage or camomile tea, by a draught of wine-whey, or a common dose of liquid laudanum.

It is worthy of notice, that if these remedies are omitted, all the premonitory symptoms that have been mentioned disappear as soon as the arthritic fever is formed, just as lassitude and chilliness yield to a paroxysm of fever from other causes.

II. Of the remedies that are proper in cases of great morbid action in the blood-vessels and viscera.

I shall begin this head by repudiating the notion of a specific cure for the gout existing in any single article of the materia medica. Every attempt to cure it by elixirs, diet-drinks, pills, or bolusses which were intended to act singly upon the system, has been

as unsuccessful as the attempts to cure the whooping cough by spells, or tricks of legerdemain.

The first remedy that I shall mention for reducing great morbid action in the blood-vessels and viscera is BLOOD-LETTING. I was first taught the safety of this remedy in the gout by reading the works of Dr. Lister nearly thirty years ago, and I have used it ever since with great advantage. It has the sanction of Dr. Hoffman, Dr. Cullen and many others of the first names in medicine in its favour.

The usual objections to bleeding as a remedy, have been urged with more success in the gout, than in any other disease. It has been forbidden, because the gout is said to be, a disease of debility. This is an error. Debility is not a disease. It is only its predisposing cause. Disease is preternatural strength in the state of the system now under consideration, occasioned by the abstraction of excitement from one part, and the accumulation of it in another part of the body. Every argument in favor of bleeding in a pleurisy, applies in the present instance, for they both depend upon the same kind of morbid action in the blood-vessels. Bleeding acts moreover alike in both cases by abstracting the excess of excitement, from the blood-vessels, and restoring its natural and healthy equality to every part of the system.

It

It has been further said, that bleeding disposes to more frequent returns of the gout. This objection to the lancet has been urged by Dr. Sydenham who was misled in his opinion of it, by his theory of the disease being the offspring of morbid matter. The assertion is unfounded, for bleeding in a fit of the gout has no such effect, provided the remedies to be mentioned hereafter are used to prevent it. But a fit of the gout is not singular in its disposition to recur after being once cured. The rheumatism, the pleurisy, and the intermitting fever are all equally disposed to return when persons are exposed to their remote and exciting causes, and yet we do not upon this account consider them as incurable diseases, nor do we abstain from the usual remedies which cure them.

The inflammatory or violent state of the gout is said most commonly to affect the limbs. But this is far from being the case. It frequently makes its first attack upon the head, lungs, kidneys, stomach, and bowels. The remedies for expelling it from the stomach and bowels are generally of a stimulating nature. They are as improper in full habits, and in the recent state of the disease, as cordials are to drive the small-pox from the vitals to the skin. Hundreds have been destroyed by them. Bleeding in these cases, affords the same speedy, and certain relief that it does in removing pain from the stomach and
bowels

bowels in the first stage of the yellow fever. Col. Miles owes his life to the loss of 60 ounces of blood in an attack of the gout in his bowels in the winter of 1795, and Major Butler derived the same benefit from the loss of near 30 ounces, in an attack of the gout in his stomach in the spring of 1798.

I have said, in the history of the symptoms of the gout, that it sometimes appeared in the form of a hectic fever. I have prescribed occasional bleedings in a case of this kind accompanied with a tense pulse, with the happiest effects. It has confined the disease for several years wholly to the blood-vessels, and it bids fair in time to eradicate it from the system.

The state of the pulse as described in another place,* should govern the use of the lancet in this disease. Bleeding is required as much in its depressed, as in its full and chorded state. Col. Miles's pulse at the time he suffered from the gout in his bowels, was scarcely perceptible. It did not rise till after a second or third bleeding.

Some advantage may be derived from examining the blood. I have once known it to be dissolved; but for the most part I have observed it, with Dr. Lister,

* Medical Inquiries and Observations, vol. iv.

Lifter, to be covered with the buffy coat of common inflammation.

The arguments made use of in favour of bleeding in the diseases of old people in a former publication, apply with equal force to its use in the gout. The inflammatory state of this disease, frequently occurs in the decline of life, and bleeding is as much indicated in such cases as in any other inflammatory fever. The late Dr. Chovet died with an inflammation in his liver from gout, in the 86th year of his age. He was twice bled, and his blood each time was covered with a buffy coat.

Where the gout affects the head with obstinate pain, and appears to be seated in the muscles, cupping gives great relief. This mode of bleeding should be trusted in those cases only in which the morbid action is confined chiefly to the head, and appears in a feeble state in the rest of the arterial system.

The advantages of bleeding in the gout, when performed under all the circumstances that have been mentioned, are as follow :

1. It removes or lessens pain.

N

2. It

2. It prevents those congestions and effusions which produce apoplexy, palsy, pneumonia notha, calculi in the kidneys and bladder, and chalk-stones in the hands and feet. The gravel and stone are nine times in ten, I believe, the effects of an effusion of lymph or blood from previous morbid action in the kidneys. If this disease were narrowly watched, and cured as often as it occurs, by the loss of blood, we should have but little gravel or stone among gouty people. A citizen of Philadelphia died a few years ago in the 96th year of his age, who had been subject to the strangury the greatest part of his life. His only remedy for it was bleeding. He lived free from the gravel and stone and died, or rather appeared to fall asleep in death, from old age. Dr. Haller mentions a similar case in his *Bibliotheca Medicinæ* in which bleeding had the same happy effects.

3. It prevents the system from wearing itself down by fruitless pain and sickness, and thereby inducing a predisposition to frequent returns of the disease.

4. It shortens the duration of a fit of gout by throwing it, not into the feet, but out of the system, and thus prevents a patient's lying upon his back for two or three months with a writhing face,
scolding

scolding a wife and a family of children, and sometimes cursing every servant that comes near enough to endanger the touch of an inflamed limb. Besides preventing all this parade of pain and peevishness, it frequently, when assisted with other remedies to be mentioned presently, restores a man to his business and society in two or three days, a circumstance this of great importance in the public, as well as private pursuits of men; for who has not read of the most interesting affairs of nations being neglected or protracted, by the principal agents in them being suddenly confined to their beds, or chairs, for weeks or months, by a fit of the gout?

2. A second remedy in the state of the gout which has been mentioned, is PURGING. Sulphur is generally preferred for this purpose, but castor oil, cream of tartar, senna, jalap, rhubarb and calomel, may all be used with equal safety and advantage. The stomach and habits of the patient should determine the choice of a suitable purge in every case. Salts are generally offensive to the stomach. They once brought on a fit of the gout in Dr. Brown.

3. Vomits may be given in all those cases where bleeding is objected to, or where the pulse is only moderately active. Mr. Small, in an excellent pa-

per upon the gout, in the 6th volume of the Medical Observations and Inquiries, p. 205, containing the history of his own case, tells us that he always took a vomit upon the first attack of the gout, and that it never failed of relieving all its symptoms. The matter discharged by this vomit indicated a morbid state of the liver, for it was always a dark greenish bile which was insoluble in water. A British lieutenant whose misfortunes reduced him to the necessity of accepting a bed in the poor-house of this city, informed the late Dr. Stuben that he had once been much afflicted with the gout, and that he had upon many occasions strangled a fit of it by the early use of an emetic. Dr. Pye adds his testimony to those which have been given in favour of vomits, and says further, that they do most service when they discharge an acid humour from the stomach. They appear to act in part by equalizing the divided excitement of the system, and in part by discharging the contents of the gall-bladder and stomach, vitiated by the previous debility of those organs. Care should be taken not to exhibit this remedy where the gout attacks the stomach with symptoms of inflammation, or where it has a tendency to fix itself upon the brain.

4. NITRE may be given with advantage in cases of inflammatory action where the stomach is not affected.

5. A fifth remedy is COOL OR COLD AIR. This is as safe and useful in the gout as in any other inflammatory state of fever. The affected limbs should be kept out of bed, *uncovered*. In this way Mr. Small says he moderated the pains of the gout in his hands and feet. * I have directed the same practice with great comfort, as well as advantage to my patients. Even cold water has been applied with good effects to a limb inflamed by the gout. Mr. Blair M'Clenachan taught me the safety and benefit of this remedy by using it upon himself without the advice of a physician. It instantly removed his pain, nor was the gout translated by it to any other part of his body. Perhaps it would be best in most cases to prefer cool or cold air to cold water. The safety and advantages of both these modes of applying cold to the affected limbs, shew the impropriety of the common practice of wrapping them in flannel.

6. Diluting liquors, such as are prescribed in common inflammatory fevers, should be given in
such

* Medical Observations and Inquiries, vol. vi. p. 201.

such quantities as to dispose to a gentle perspiration.

7. Abstinence from wine, spirits, and malt liquors, also from such aliments as afford much nourishment or stimulus, should be carefully enjoined. Sago, panada, tapioca, diluted milk with bread, and the pulp of apples, summer fruits, tea, coffee, weak chocolate, and bread soaked in chicken water or beef tea, should constitute the principal diet of patients in this state of the gout.

8. Blisters are an invaluable remedy in this disease when used at a proper time, that is, after the reduction of the morbid actions in the system by previous evacuations. They should be applied to the legs and wrists in general gout, and to the neck and sides, when it attacks the head or breast. A strangury from the gout, is no objection to their use. So far from increasing this complaint, Dr. Clerk and Dr. Whyt inform us, that they remove it.* But the principal advantage of blisters is derived from their collecting and concentrating, scattered and painful sensations, and conveying them out of the system, and thus becoming excellent substitutes for a fit of the gout.

9. Fear

* Physical and Literary Essays, vol. iii. p. 469.

9. Fear and terror have in some instances cured a paroxysm of this disease. A captain of a British ship of war who had been confined for several weeks to his cabin, by a severe fit of the gout in his feet, was suddenly cured by hearing the cry of fire on board his ship. This fact was communicated to me by a gentleman who was a witness of it. Many similar cases are upon record in books of medicine. I shall in another place insert an account of one in which the cure effected by a fright, eradicated the disease from the system so completely, as ever afterwards to prevent its return.

Thus have I enumerated the remedies which are proper in the gout when it affects the blood-vessels and viscera with great morbid action. Most of those remedies are alike proper when the morbid actions are seated in the muscular fibres, whether of the bowels or limbs, and whether they produce local pain, or general convulsion; provided they are of a violent nature.

There are some remedies under this head of a doubtful nature, on which I shall make a few observations.

SWEATING has been recommended in this state of the gout. All the objections to it in preference

to

to other modes of depletion, mentioned in another place,* apply against its use in the inflammatory state of the gout. It is not only less safe than bleeding, purging, and abstinence, but it is often an impracticable remedy. The only sudorific medicine to be trusted in this state of the disease is the Seneka snake-root. It promotes all the secretions and excretions, and exerts but a feeble stimulus upon the arterial system.

Many different preparations of OPIUM have been advised in this state of the gout. They are all hurtful if given before the morbid action of the system is nearly reduced. It should then be given in small doses accommodated to the excitability of the system.

Applications of various kinds to the affected limbs have been used in a fit of the gout, and some of them with success. The late Dr. Chalmers of South Carolina used to meet the pain of the gout as soon as it fixed in any of his limbs, with a blister, and generally removed it by that means in two or three days. I have imitated this practice in several cases, and always with success, nor have I ever seen the gout thrown upon any of the viscera by
means

* Medical Inquiries and Observations, vol. iv.

means of this remedy. Caustics have sometimes been applied to gouty limbs with advantage. The moxa described, and used by Sir William Temple, which is nothing but culinary fire, has often not only given relief to a pained limb, but carried off a fit of the gout in a few hours. These powerful applications may be used with equal advantage in those cases in which the gout by falling upon the head produces coma, or symptoms of apoplexy. A large caustic to the neck, roused Mr. John M. Nesbit from a coma in which he had lain for three days, and thereby appeared to save his life. Blisters, and cataplasms of mustard, had been previously used to different parts of his body, but without the least effect. In cases of moderate pain, where a blister has been objected to, I have seen a cabbage leaf afford considerable relief. It produces a moisture upon the part affected, without exciting any pain. An old sea captain taught me to apply molasses to a limb inflamed or pained by the gout. I have frequently advised it, and generally with advantage. All volatile and stimulating liniments are improper, for they not only endanger a translocation of the morbid excitement to the viscera, but where they have not this effect, they increase the pain, and inflammation of the part affected.

The

The sooner a patient exercises his lower limbs by walking, after a fit of the gout, the better. "I made it a constant rule (says Mr. Small) to walk abroad as soon as the inflammatory state of the gout was past, and though by so doing, I often suffered great pain, I am well convinced that the free use I now enjoy of my limbs, is chiefly owing to my determined perseverance in the use of that exercise; nor am I less persuaded that nine in ten of gouty cripples owe their lameness more to indolence and fear of pain, than to the genuine effects of the gout."* Sir William Temple confirms the propriety of Mr. Small's opinion and practice, by an account of an old man who obviated a fit of the gout as often as he felt it coming in his feet, by walking in the open air, and afterwards by going into a warm bed, and having the parts well rubbed where the pain began. "By following this course (he says) he was never laid up with the gout, and before his death recommended the same course to his son if ever he should fall into that accident." Under a conviction of the safety of this practice the same author concludes the history of his own case in the following words. "I favoured it [viz. the swelling in my feet] all this while more than I needed, upon the common opinion,

* Medical Observations and Inquiries, vol. vi. p. 220.

opinion, that walking too much might draw down the humour, which I have since had reason to conclude a great mistake, and that if I had walked as much as I could from the first day the pain left me, the swelling might have left me too in a much less time." *

III. I come now to mention the remedies which are proper in that state of the gout in which a *feeble* morbid action takes place in the blood-vessels and viscera.

I shall begin this head, by remarking, that this state of the gout is for the most part created, like the typhus state of fever, by the neglect, or too scanty use of evacuations in its first stage. When the prejudices which now prevent the adoption of those remedies in their proper time, are removed, we shall hear but little of the low state of the arthritic fever, nor of the numerous disorders from obstruction which are produced by the blood-vessels disorganizing the viscera, by repeated and violent attacks of the disease.

To determine the character of a paroxysm of gout and the remedies proper to relieve it, the climate,

* Essay upon the Cure of the Gout by Moxa, vol. i. folio edition, p. 143 and 141.

mate, the season of the year, the constitution of the atmosphere, and the nature of the prevailing epidemic, should be carefully attended to by a physician. But his principal dependance should be placed upon the state of the pulse. If it does not discover the marks which indicate bleeding formerly referred to, but is weak, quick and soft, the remedies should be such as are calculated to produce a more vigorous, and equable action in the blood-vessels and viscera. They are,

1. Opium. It should at first be given in small doses, and afterwards increased, as circumstances may require.

2. Madeira or Sherry wine alone, or diluted with water, or in the form of whey, or rendered more cordial by having any agreeable spice infused in it. It may be given cold, or warm, according to the taste of the patient, or the state of his stomach. If this medicine be rejected in all the above forms,

3. Porter should be given. It is often retained, when no other liquor will lay upon the stomach. I think I once saved the life of Mr. Nesbit by this medicine. It checked a vomiting, from the gout, which seemed to be the last symptom of his departing life. If porter fails of giving relief,

4. Ardent

4. Ardent spirits should be given, either alone, or in the form of grog, or toddy. Cases have occurred in which a pint of brandy has been taken in the course of an hour with advantage. Great benefit has sometimes been found from Dr. Warner's tincture, in this state of the gout. As these observations may fall into the hands of persons who may not have access to Dr. Warner's book, I shall here insert the receipt for preparing it.

Of raisons sliced and stoned, half a pound.

Rhubarb, one ounce.

Sena, two drachms.

Coriander and fennel seeds, of each one drachm.

Cochineal, saffron and liquorice root, each half a drachm.

Infuse them for ten days in a quart of French brandy, then strain it and add a pint more of brandy to the ingredients, afterwards strain it, and mix both tinctures together. Four table spoons full of this cordial are to be taken every hour mixed with an equal quantity of water, until relief be obtained.

Ten drops of laudanum may be added to each dose in those cases in which the cordial does not produce its intended effects, in two or three hours.—If all the different forms of ardent spirits which have been mentioned fail of giving relief,

From

5. From 30 drops to a tea spoonful of *æther* should be given in any agreeable vehicle. Also,

6. Volatile alkali. From five to ten grains of this medicine should be given every two hours.

7. Aromatic substances, such as alspice, ginger, Virginia snake-root, cloves, and mace in the form of teas, have all been useful in this state of the gout.

All these remedies are indicated in a more especial manner when the gout affects the stomach. They are likewise proper when it affects the bowels. The laudanum in this case should be given by way of glyster. After the vomiting was checked in Mr. Nesbit by means of porter, he was afflicted with a dull and distressing pain in his bowels, which was finally removed by two anodyne glysters injected daily for two or three weeks.

8. Where the gout produces spasmodic or convulsive motions, the OIL OF AMBER may be given with advantage. I once saw it remove for a while a convulsive cough from the gout.

9. In cases where the stomach will bear the BARK, it should be given in large and frequent doses. It
does

does the same service in this state of gout, that it does in the slow or low states of fever from any other cause. Where the gout appears in the form of an intermittent, the bark affords the same relief that it does in the same disease from autumnal exhalations. Mr. Small found great benefit from it after discharging the contents of his stomach and bowels by a dose of tartar emetic. “I do not call (says this gentleman) a fit of the gout a paroxysm, for there are several paroxysms in the fit, each of which is ushered in with a rigor, sickness at stomach, and subsequent heat. In this the gout bears a resemblance to an irregular intermittent, at least to a remitting fever, and hence perhaps the efficacy of the bark in removing the gout.”*

10. The warm bath is a powerful remedy in exciting a regular and healthy action in the sanguiferous system. Where the patient is too weak to be taken out of bed, and put into a bathing tub, his limbs and body should be wrapped in flannels dipped in warm water. In case of a failure of all the above remedies; .

11. A SALIVATION should be excited as speedily as possible by means of mercury. Dr. Cheyne commends it in high terms. I have once used it with
success

* Medical Observations and Inquiries, vol. vi. p. 220.

success. The mercury when used in this way, brings into action an immense mass of latent excitement, and afterwards diffuses it equally through every part of the body.

12. Besides these internal remedies, frictions with brandy, and volatile liniment should be used to the stomach and bowels. Blisters should be applied to parts in which congestion, or pain is seated, and stimulating cataplasms should be applied to the lower limbs. The flour of mustard has been justly preferred for this purpose. It should be applied to the upper part of the foot.

The reader will perceive in the account I have given of the remedies proper in the feeble state of chronic fever, that they are the same which are used in the common typhus, or what is called nervous fever. There is no reason why they should not be the same, for the supposed two morbid states of the system, are but one disease.

It is agreeable in medical researches to be under the direction of principles. They render unnecessary in many instances, the slow and expensive operations of experience, and thus multiply knowledge, by lessening labor. The science of navigation has rested upon this basis, since the discovery of the loadstone.

storic. A mariner who has navigated a ship to one distant port, is capable of conducting her to every port upon the globe. In like manner, the physician who can cure one disease by a knowledge of its principles, may by the same means cure all the diseases of the human body, for their causes are the same. Judgment is required, only in accommodating the force of remedies, to the force of each disease. The difference in diseases which arises from their seats, from age, sex, habit, season and climate, may be known in a short time, and is within the compass of very moderate talents.

IV. Were I to enumerate all the local symptoms of gout which occur without fever, and the remedies that are proper to relieve them, I should be led into a tedious digression. The reader must consult practical books for an account of them. I shall only mention the remedies for a few of them.

The theory of the gout which has been delivered, will enable us to understand the reason why a disease which properly belongs to the whole system, should at any time be accompanied only with local morbid affection. The whole body is an unit, and hence morbid impressions which are resisted by sound parts, are propagated to such as are weak, where they excite those morbid actions we call disease.

The HEAD-ACH is a distressing symptom of the gout. It yields to depleting or tonic remedies according to the degree of morbid action which accompanies it. I have heard an instance of an old man who was cured of an obstinate head-ach by throwing aside his night cap, and sleeping with his bare-head exposed to the night air. The disease in this case was probably attended with great morbid action. In this state of the vessels of the brain, cupping, cold applications to the head, purges, a temperate diet, and blisters behind the ears, are all proper remedies, and should be used together, or in succession, as the nature of the disease may require. Many persons have been cured of the same complaint by sleeping in woollen night caps. The morbid action in these cases is always of a feeble nature. With this remedy, tonics, particularly the bark and cold bath, will be proper. I have once known a chronic gouty pain in the head, cured by an issue in the arm, after pounds of bark, and many other tonic remedies had been taken to no purpose.

The ophthalmia from gout should be treated with the usual remedies for that disease when it arises from other causes, with the addition of such local applications to other and distant parts of the body, as may abstract the gouty action from the eyes.

Dull

Dull but constant pains in the limbs yield to frictions, volatile liniments, muslin and woollen worn next to the skin, electricity, a salivation, and the warm and cold bath. A gentleman who was afflicted with a pain of this kind for three years and an half in one of his arms, informed me that he had been cured by wearing a woollen stocking that had been boiled with sulphur in water, for two weeks upon the affected limb. He had previously worn flannel upon it, but without receiving any benefit from it. I have known wool and cotton finely carded and made into small mats, worn upon the hips when affected by gout, with great advantage. In obstinate sciatic pains without fever or inflammation, Dr. Pitcairn's remedy published by Dr. Cheyne has performed many cures. It consists in taking from one to four tea-spoonfuls of the fine spirit of turpentine every morning for a week or ten days in three times the quantity of honey, and afterwards in drinking a large quantity of sack whey to settle it on the stomach, and carry it into the blood. An anodyne should be taken every night after taking this medicine.

A gouty diarrhœa should be treated with the usual astringent medicines of the shops. Blisters to the wrists and ankles, also a salivation, have often cured it. I have heard of its being checked,

after continuing for many years, by the patient eating large quantities of alspice, which he carried loose in his pocket for this purpose.

The angina pectoris which I have said is a symptom of the gout, generally comes on with fulness and tension in the pulse. After these are reduced by two or three bleedings, mineral tonics seldom fail of giving relief.

Spasms in the stomach, and pains in the bowels often seize gouty people in the midst of business or pleasure, or in the middle of the night. My constant prescription for these complaints is ten drops of laudanum every half hour till relief be obtained. If this medicine be taken in the forming state of these pains, a single dose generally removes the disease. It is preferable to spiced wine and spirits, inasmuch as it acts quicker, and leaves no disposition to contract a love for it when it is not required to ease pain.

The pain in the rectum which has been described, yields to the common remedies for the piles. Cold water applied to the part, generally gives immediate relief.

The

The itching in the anus which I have supposed to be a symptom of gout, has yielded in one instance that has come within my knowledge to mercurial ointment applied to the part affected. Dr. Lettsom recommends fomenting the part with a decoction of poppy heads and hemlock, and advises lenient purges and a vegetable diet as a radical cure for the disease. *

For the itching in the vagina, I have found a solution of the sugar of lead in water to be an excellent palliative application. Dr. Lettsom recommends as a cure for it, the use of bark in delicate habits, and occasional bleeding, with a light and moderate diet, if it occur about the time of the cessation of the menses.

Obstinate cutaneous eruptions which are the effects of gout, have been cured by gentle physic, a suitable diet, issues, and applications of the unguentum citrinum to the parts affected.

The arthritic gonorrhæa should be treated with the same remedies as a gonorrhæa from any other cause.

In the treatment of all the local symptoms that have been enumerated, it will be of great consequence

* Medical Memoirs, vol. iii.

quence to inquire before we attempt to cure them, whether they have not succeeded general gout, and thereby relieved the system from its effects in parts essential to life. If this has been the case, the cure of them, should be undertaken with caution, and the danger of a local disease being exchanged for a general one, should be obviated by remedies that are calculated to eradicate the gouty diathesis altogether from the system. The means for this purpose, agreeably to our order, come next under our consideration. Before I enter upon this head, I shall premise, that I do not admit of the seeds of the gout remaining in the body to be eliminated by art after a complete termination of one of its paroxysms, any more than I admit of the seeds of a pleurisy or intermitting fever remaining in the body, after they have been cured by blood-letting or bark. A predisposition only remains in the system to a return of the gout, from its usual remote and exciting causes. The contrary idea took its rise in those ages of medicine in which morbid matter was supposed to be the proximate cause of the gout, but it has unfortunately continued since the rejection of that theory. Thus in many cases, we see wrong habits continue long after the principles have been discarded, from which they were derived.

I have known several instances in which art, and I have heard and read of others in which accidental suffering from abstinence, pain and terror, have been the happy means of overcoming a predisposition to the gout. A gentleman from one of the West India islands who had been for many years afflicted with the gout, was perfectly cured of it by living a year or two upon the temperate diet of the jail in this city into which he was thrown for debt by one of his creditors. A large hæmorrhage from the foot inflamed and swelled by the gout, accidentally produced by a penknife which fell upon it, effected in an Irish gentleman a lasting cure of the disease. Hildanus mentions the history of a gentleman whom he knew intimately, who was radically cured of a gout with which he had been long afflicted, by the extreme bodily pain he suffered innocently from torture in the Canton of Berne. He lived to be an old man, and ever afterwards enjoyed good health.* The following letter from my brother contains the history of a case in which terror suddenly eradicated the gout from the system.

“ *Reading,*

* *Observat. Chirurg. Cent. 1. Obs. 79.*

“ *Reading, July 27th, 1797.*

“ DEAR BROTHER,

“ WHEN I had the pleasure of seeing you last week, I mentioned an extraordinary cure of the gout in this town, by means of a *fright*. In compliance with your request, I now send an exact narration of the facts.

“ Peter Fether the person cured, is now alive, a householder in Reading, seventy-three years of age, a native of Germany, and a very hearty man. The first fit of the gout he ever had, was about the year 1773; and from that time till 1785, he had a regular attack in the spring of every year. His feet, hands, and elbows, were much swollen and enflamed—the fits lasted long and were excruciating. In particular the last fit in 1785 was so severe, as to induce an apprehension, that it would inevitably carry him off—when he was suddenly relieved by the following accident,

“ As he lay in a small back room adjoining the yard, it happened that one of his sons in turning a waggon and horses, drove the tongue of the waggon with such force against the window near which the old man lay stretched on a bed, as to beat in the sash of the window, and to scatter the
pieces

pieces of broken glass all about him. To such a degree was he alarmed by the noise and violence, that he instantly leaped out of bed, forgot that he had ever used crutches, and eagerly inquired what was the matter. His wife hearing the uproar, ran into the room, where to her astonishment, she found her husband on his feet, bawling against the author of the mischief, with the most passionate vehemence.—From *this* moment, he has been entirely exempt from the gout, has never had the slightest touch of it—and *now* enjoys perfect health, has a good appetite, and says he was never heartier in his life. This is probably the more remarkable, when I add, that he has always been used to the hard work of a farm; and *since* the year 1785 has frequently mowed in his own meadow, which I understand is low and wet. I am well informed, in his mode of living, he has been temperate, occasionally indulging in a glass of wine, after the manner of the German farmers, but not to excess.

“ To you, who have been long accustomed to explore diseases, I leave the task of developing the principles, on which this mysterious restoration from the lowest decrepitude and bodily wretchedness, to a state of perfect health, has been accomplished. I well know that tooth-aches, head-aches, hiccoughs, &c. are often removed by the sudden
impression

impression of fear, and that they return again. But to see a debilitated gouty frame instantly restored to vigour—to see the whole system in a moment, (as it were) undergo a perfect and entire change, and the most inveterate and incurable disorder, *radically* expelled; is surely a *different* thing, and must be acknowledged a very singular and marvellous event. If an old man languishing under disease and infirmity, had *died* of mere fright, nobody would have been surprised at it—But that he should be absolutely cured, and his constitution renovated by it, is a most extraordinary fact; which, while I am compelled to believe by unexceptionable evidence, I am totally at a loss to account for.

I am your sincerely

affectionate brother,

JACOB RUSH."

These facts, and many similar ones which might be mentioned, afford ample encouragement to proceed in enumerating the means which are proper to prevent the recurrence of the gout, or in other words to eradicate it from the system.

V. I shall first mention the means of preventing the return of that state of the disease which is accompanied with *violent* action, and afterwards take notice of the means of preventing the return of that

that state of it, in which a *feeble* morbid action takes place in the blood-vessels. The means for this purpose consist in avoiding all the remote, exciting, and predisposing causes of the gout which have been mentioned. I shall say a few words upon the most important of them, in the order that has been proposed.

I. The first remedy for obviating the *violent* state of gout is,

1. Temperance. This should be regulated in its degrees by the age, habits and constitution of the patient. A diet consisting wholly of milk, vegetables, and simple water, has been found necessary to prevent the recurrence of the gout in some cases. But in general, fish, eggs, the white meats and weak broths may be taken in small quantities once a day, with milk and vegetables at other times. A little salted meat which affords less nourishment than fresh, may be eaten occasionally. It imparts vigour to the stomach, and prevents dyspepsia from a diet consisting chiefly of vegetables. The low, and acid wines should be avoided, but weak Madeira or Sherry wine and water, or small beer may be drunken at meals. The latter liquor, was the favourite drink of Dr. Sydenham in his fits of the gout. Strong tea, and coffee should not be
tasted,

tasted, where there is reason to believe the habitual use of them has contributed to bring on the disease.

From the disposition of the gout to return in the spring, and autumn, greater degrees of abstinence in eating and drinking will be necessary at those seasons than at any other time.—In persons above fifty years of age, this abstemious mode of living, should be commenced with great caution. It has sometimes when entered upon suddenly, and carried to its utmost extent, induced fits of the gout, and precipitated death. In such persons the abstinences from their usual diet should be small, and their dependance should be placed upon other means to prevent a return of the disease.

2. Moderate labour and gentle exercise, have frequently removed that debility and vibratility in the blood-vessels, on which a predisposition to the gout depends. Hundreds of persons who have been reduced by misfortunes, to the necessity of working for their daily bread, have thrown off a gouty diathesis derived from their parents, or acquired by personal acts of folly and intemperance. The employments of agriculture afford the most wholesome labour; and walking, the most salutary exercise. To be useful, they should be moderate.

rate. The extremes of indolence, and bodily activity, meet in a point. They both induce debility, which predisposes to a recurrence of a fit of the gout. Riding in a carriage, and on horse-back are less proper as a means of preventing the disease, than walking. Their action upon the body is partial. The lower limbs derive no benefit from it, and on these, the violent state of gout generally makes its first attack. In England many domestic exercises have been contrived for gouty people, such as shuttle-cock, bullets, the chamber-horse and the like, but they are all trifling in their effects, compared with labour and exercise in the open air. The efficacy of the former of those prophylactic remedies will appear in a strong point of light when we consider, how much the operation of the remote and exciting causes of the gout which act more or less upon persons in the humblest ranks of society, are constantly counteracted in their effects, by the daily labour which is necessary for their subsistence.

3. To prevent the recurrence of the gout, cold should be carefully avoided, more especially when it is combined with moisture. Flannel should be worn next to the skin in winter, and muslin in summer, in order to keep up a steady and uniform perspiration. Fleecy hosiery should be worn in cold weather

weather upon the breast and knees, and the feet should be kept constantly warm and dry by means of socks, and cork-soled shoes. It was by wetting his feet, by standing two or three hours upon the damp ground, that Col. Miles produced the gout in his stomach and bowels which had nearly destroyed him in the year 1795.

4. Great moderation should be used by persons who are subject to the gout in the exercise of their understandings and passions. Intense study, fear, terror, anger, and even joy, have often excited the disease into action. It has been observed, that the political and military passions act with more force upon the system, than those which are of a social and domestic nature; hence generals and statesmen are so often afflicted with the gout, and that too as was hinted in another place, in moments the most critical and important to the welfare of a nation. The combination of the exercises of the understanding, and the passion of avarice in gaming, have often produced an attack of this disease.

These facts shew the necessity of gouty people subjecting their minds, with all their operations, to the government of reason and religion. The understanding should be exercised only upon light and pleasant subjects. No study should ever be pursued

fued till it brings on fatigue ; and above all things, midnight and even late studies should be strictly avoided. A gouty man should always be in bed at an early hour. This advice has the sanction of Dr. Sydenham's name, and experience proves its efficacy in all chronic diseases.

5. The venereal appetite should be indulged with moderation, and

6. Costiveness should be prevented by all persons who wish to escape a return of violent fits of the gout. Sulphur is an excellent remedy for this purpose. Dr. Cheyne commends it in high terms. His words are, " Sulphur is one of the best remedies in the intervals of the gout. In the whole extent of the *materia medica*, I know not a more safe and active medicine." * Two cases have come within my knowledge, in which it has kept off fits of the gout for several years, in persons who had been accustomed to have them once or twice a year. Rhubarb in small quantities chewed, or in the form of pills, may be taken to obviate costiveness, by persons who object to the habitual use of sulphur. Dr. Cheyne who is lavish in his praises of that medicine as a gentle laxative, says, he " knew a noble lord

* Essay on the Nature, and True Method of Treating the Gout, p. 36.

lord of great worth and much gout, who, by taking from the hands of a quack, a drachm of rhubarb tinged with cochineal to disguise it, every morning for six weeks, lived in health for four years after, without any symptom of it." *

I have said that abstinence should be enjoined with more strictness in the spring and autumn, than at any other time, to prevent a return of the gout. From the influence of the weather at those seasons in exciting febrile actions in the system, the loss of a pint of blood will be useful in some cases for the same purpose. It will be the more necessary if the gout has not paid its habitual visits to the system. The late Dr. Gregory had been accustomed to an attack of the gout every spring. Two seasons passed away without his feeling any symptoms of it. He began to flatter himself with a hope that the predisposition to the disease had left him. Soon afterwards he died suddenly of an apoplexy. The loss of a few ounces of blood at the usual time in which the gout affected him, would probably have protracted his life for many years. In the year 1796, in visiting a patient, I was accidentally introduced into a room where a gentleman from the Delaware state had been lying

on

on his back for near six weeks with an acute fit of the gout. He gave me a history of his sufferings. His pulse was full and tense, and his whole body was covered with sweat from the intensity of his pain. He had not had his bowels opened for ten days. I advised purging and bleeding in his case. The very names of those remedies startled him, for he had adopted the opinion of the salutary nature of a fit of the gout, and therefore hugged his chains. After explaining the reason of my prescriptions, he informed me in support of them, that he had escaped the gout but two years in twenty, and that in one of these two years he had been bled for a fall from his horse, and in the other, his body had been reduced by a nervous fever, previously to the time of the annual visit of his gout.

An epitome of all that has been said upon the means of preventing a return of the gout, may be delivered in a few words. A man who has had one fit of it, should consider himself in the same state as a man who has received the contagion of a malignant fever into his blood. He should treat his body as if it were made of glass. By this means he will probably prevent during his life, the re-excitement of the disease.

Are ISSUES proper to prevent the return of the violent state of gout? I have heard of an instance of an issue in the leg having been effectual for this purpose; but if the remedies before mentioned be used in the manner that has been directed, so unpleasant a remedy can seldom be necessary.

Are BITTERS proper to prevent a return of this state of gout? It will be a sufficient answer to this question to mention, that the Duke of Portland's powder, which is composed of bitter ingredients, excited a fatal gout in many people who used it for that purpose. I should as soon expect to see gold produced by the operations of fire upon copper or lead, as expect to see the gout prevented or cured by any medicine that acted upon the system without the aid of more or less of the remedies that have been mentioned.

II. We come now, in the last place, to mention the remedies which are proper to prevent a return of that state of gout which is attended with a *feeble* morbid action in the blood-vessels and viscera.

This state of gout generally occurs in the evening of life, and in persons of delicate habits or in such as have had their constitutions worn down by repeated attacks of the disease.

The

The remedies to prevent it are,

1. A gently stimulating diet consisting of animal food well cooked, with sound old Madeira or Sherry wine, or weak spirit and water. Salted, and even smoaked meat may be taken in this state of the system with advantage. It is an agreeable tonic, and is less disposed to create plethora than fresh meat. Pickles and vinegar should seldom be tasted. They dispose to gouty spasms in the stomach and bowels. Long intervals between meals should be carefully avoided. The stomach when overstretched or empty, is always alike predisposed to disease. There are cases in which the evils of inanition in the stomach will be prevented, by a gouty patient eating in the middle of the night.

2. The use of chalybeate medicines. These are more safe when used habitually, than bitters. I have long been in the practice of giving the different preparations of iron in large doses in chronic diseases, and in that state of debility which disposes to them. A lady of a weak constitution informed Dr. Cheyne “that she once asked Dr. Sydenham how long she might safely take steel. His answer was, that she might take it for thirty years, and then begin again if she continued ill.”*

Water

* Essay on the nature, and true method of treating the gout, p. 69.

Water impregnated with iron, either by nature, or art, may be taken instead of the solid forms of the metal. It will be more useful if it be drunken in a place where patients will have the benefit of country air.

3. The habitual use of the volatile tincture of gum guaiacum, and of other cordial, and gently stimulating medicines. A clove of garlic taken once or twice a day, has been found useful in debilitated habits predisposed to the gout. It possesses a wonderful power in bringing latent excitement into action. It moreover acts agreeably upon the nervous system.

Mr. Small found great benefit from breakfasting upon a tea made of half a drachm of ginger cut into small slices, in preventing occasional attacks of the gout in his stomach. The root of the saffrafras of our country might probably be used with advantage for the same purpose.—Aurelian speaks of certain remedies for the gout which he calls “annalia.”* The above medicines belong to this class. To be effectual, they should be persisted in, not for one year only, but for many years.

4. Warmth

* *Morborum Chronicorum. Lib. v. Cap. 2.*

4. Warmth uniformly applied, by means of suitable dresses, and sitting rooms, to every part of the body.

5. The warm bath in winter, and the temperate, or cold bath in summer.

6. Exercise. This may be in a carriage, or on horseback. The viscera being debilitated in this state of predisposition to the gout, are strengthened in a peculiar manner by the gentle motion of a horse. Where this or other modes of passive exercise cannot be had, frictions to the limbs and body should be used every day.

7. Costiveness should be avoided by taking occasionally one or two table spoons full of Dr. Warner's purging tincture prepared by infusing rhubarb, orange peel, and caraway seeds of each an ounce for three days in a quart of Madeira, or any other white wine. If this medicine be ineffectual for opening the bowels, rhubarb may be taken in the manner formerly mentioned.

8. The understanding and passions should be constantly employed in agreeable studies and pursuits. Fatigue of mind and body, should be carefully avoided.

9. A warm climate often protracts life in persons subject to this state of gout. The citizens of Rome who had worn down their constitutions by intemperance, added many years to their lives, by migrating to Naples, and enjoying there in a warmer sun, the pure air of the Mediterranean, and Sir William Temple says the Portuguese obtain the same benefit from transporting themselves to the Brasils, after medicine and diet cease to impart vigor to their constitutions in their native country.

Thus have I enumerated the principal remedies for curing and preventing the gout. Most of them are to be met with in books of medicine, but they have been administered by physicians, or taken by patients with so little regard to the different states of the system, that they have in many instances done more harm than good. Solomon places all wisdom in the management of human affairs, in finding out the proper times for performing certain actions. Skill in medicine consists in an eminent degree in timing remedies. There is a time to bleed, and a time to withhold the lancet. There is a time to give physic, and a time to trust to the operations of nature. There is a time to eat meat, and there is a time to abstain from it. There is a time to give tonic medicines, and a time to refrain from them. In a word, the cure of the gout depends

pends wholly upon two things, viz. proper remedies, in their proper times, and places.

I shall take leave of this disease, by comparing it to a deep and dreary cave in a new country, in which ferocious beasts, and venomous reptiles with numerous ghosts and hobgoblins, are said to reside. The neighbours point at the entrance of this cave with horror, and tell of the many ravages that have been committed upon their domestic animals, by the cruel tenants which inhabit it. At length a school-boy careless of his safety, ventures to enter this subterraneous cavern, when! to his great delight, he finds nothing in it but the same kind of stones and water he left behind him upon the surface of the earth. In like manner, I have found no other principles necessary to explain the cause of the gout, and no other remedies necessary to cure it, than such as are admitted in explaining the causes, and in prescribing, for the most simple and common diseases.

OBSERVATIONS
UPON THE
NATURE AND CURE
OF THE
HYDROPHOBIA.

Q



OBSERVATIONS, &c.

IN entering upon the consideration of this formidable disease, I feel myself under an involuntary impression somewhat like that which was produced by the advice the king of Syria gave to his captains when he was conducting them to battle. “Fight not with small, or great; save only with the king of Israel.”*—In whatever light we contemplate the hydrophobia, it may be considered as pre-eminent in power and mortality, over all other diseases.

It is now many years since the distress, and horror
Q₂ excited

* Chron. ii. chap. xviii. 30.

excited by it, both in patients and their friends, led me with great solicitude to investigate its nature. I have at length satisfied myself with a theory of it which I hope will lead to a rational, and successful mode of treating it.

For a history of the symptoms of the disease, and many interesting facts connected with it, I beg leave to refer the reader to Dr. Mease's learned and ingenious inaugural dissertation published in the year 1792.

The remote and exciting causes of the hydrophobia are as follow.

1. The bite of a rabid animal. Wolves, foxes, cats, as well as dogs impart the disease. It has been said that blood must be drawn in order to produce it, but I have heard of a case in Lancaster county in Pennsylvania, in which a severe contusion, by the teeth of the rabid animal, without the effusion of a drop of red blood, excited the disease. Happily for mankind it cannot be communicated by blood, or saliva falling upon sound parts of the body. In Maryland the negroes eat with safety the flesh of hogs that have perished from the bite of mad dogs, and I have heard of the milk of a cow at Chestertown in the same state, having been used without any inconvenience

venience by a whole family on the very day in which she was affected by this disease, and which killed her in a few hours. Dr. Baumgarten confirms these facts by saying that “the flesh and milk of rabid animals have been eaten with perfect impunity.”*

In the following observations I shall confine myself chiefly to the treatment of the hydrophobia which arises from the bite of a rabid animal, but I shall add in this place a short account of all its other causes.

2. Cold night air. Dr. Arthaud late president of the society of Philadelphians in St. Domingo, has published several cases in which it was produced in negroes by sleeping all night in the open air.

3. A wound in a tendinous part.

4. Putrid and impure animal food.

5. Worms. 6. Eating beach nuts. 7. Great thirst. 8. Fear. 9. Involuntary association of ideas. 10. Hysteria. 11. The tetanus. 12. The hydrocephalus. Of the presence of hydrophobia in the hydrocephalic state of fever, there have been several instances in Philadelphia. 13. The typhus fever.

Dr.

* Medical Commentaries, Philadelphia edition, vol. 7. p. 409.

Dr. Trotter mentions the hydrophobia as a symptom which frequently occurred in the typhus state of fever in the British navy.* It is taken notice of likewise in a putrid fever by Dr. Coste.† Vanswieten describes a case of it which succeeded a dysentery,‡ and Dr. Griffiths observed it in a high degree in a young Lady who died of the yellow fever in 1793.

The dread of water, from which this disease derives its name, has five distinct grades. 1. It cannot be drunken. 2. It cannot be touched. 3. The sound of it in pouring from one vessel to another, 4. the sight of it, and 5. even the naming of it, cannot be borne, without exciting convulsions. But this symptom is not an universal one. Dr. Mead mentions three cases in which there was no dread of water in persons who received the disease from the bite of a rabid animal. It is unfortunate for this disease as well as many others, that a single symptom should impose names upon them: In the present instance, it has done great harm, by fixing the attention of physicians so exclusively upon the dread of water, which occurs in it, that they have in a great measure overlooked every other circumstance which belongs

* *Medicina Nautica*, p. 301.

† *Medical Commentaries*, Dobson's edition, vol. ii. p. 476.

‡ Vol. xi. p. 144.

belongs to the disease. The theory of the hydrophobia which an examination of its causes, symptoms, and accidental cures with all the industry I was capable of, has led me to adopt is, that it is a **MALIGNANT STATE OF FEVER**. My reasons for this opinion are as follow.

1. The disease in all rabid animals is a fever. This is obvious in dogs who are most subject to it. It is induced in them by the usual causes of fever, such as scanty or putrid aliment,* extreme cold, and the sudden action of heat upon their bodies. Proofs of its being derived from each of the above causes, are to be met with in most of the authors who have written upon it. The animal matters which are rendered morbid by the action of the above causes upon them, are determined to the saliva, in which a change seems to be induced, similar to that which takes place in the perspirable matter of the human species from the operation of similar causes upon it. This matter it is well known is the remote cause of the jail fever and the plague. No wonder the saliva of a dog should produce a
disease

* “ Animal food in a state of putridity, is amongst the most frequent causes of canine madness.”

“ Canine madness chiefly arises from the excessive number of ill-kept and ill-fed dogs.”

YOUNG’S ANNALS, vol. xvii. p. 561.

disease of the same kind, after being vitiated by the same causes, and thereby disposed to produce the same effects. 2. The disease called canine madness, prevails occasionally among dogs at those times in which malignant fevers are epidemic. This will not surprise those persons who have been accustomed to observe the prevalence of the influenza and bilious fevers among other domestic animals at a time when they are epidemic among the human species. Dr. James and Sir Theodore Mayerne assert, that the disease among dogs is propagated by contagion. Dr. James says that it has been communicated by the miasmata left by them in a kennel. I believe this to be possible, for the analogy of the hydrophobia with the small pox, in so many particulars, favours the idea that it may be propagated as well through the medium of the air, as by the mixture of the saliva of the diseased dog with the blood. 3. Dogs when they are said to be mad, exhibit the usual symptoms of fever, such as a want of appetite, great heat, a dull, fierce, red, or watery eye, indisposition to motion, sleepiness, delirium, and madness. The symptom of madness is far from being universal, and hence many dogs are diseased and die with this malignant fever, that are inoffensive, and instead of biting, continue to fawn upon their masters. Nor is the disposition of the fever to communicate itself by infection universal among dogs.

dogs any more than the same fever in the human species, and this I suppose to be one reason why many people are bitten by what are called mad dogs, who never suffer any inconvenience from it.

4. A dissection of a dog, by Dr. Cooper, that died with this fever, exhibited all the usual marks of inflammation and effusion which take place in common malignant fevers. I shall in another place mention a fifth argument in favour of the disease in dogs being a malignant fever, from the efficacy of one of the most powerful remedies in that state of fever, having cured it in two instances.

II. The disease produced in the human species by the bite of a rabid animal is a *malignant* fever. This appears first from its symptoms. These, as recorded by Aurelian, Mead, Fothergill, Plummer, Arnold, Baumgarten, and Morgagni, are chills, great heat, thirst, nausea, a burning sensation in the stomach, vomiting, costiveness—a small, quick, tense, irregular, intermitting, natural, or slow pulse—a cool skin, great sensibility to cold air, partial cold and clammy sweats on the hands, or sweats accompanied with a warm skin diffused all over the body, difficulty of breathing, sighing, restlessness, hiccup, giddiness, head-ache, delirium, coma, false vision, dilatation of the pupils, dulness of sight, blindness, glandular swellings, heat of urine, priapism, palpitation

tation of the heart, and convulsions.—I know that there are cases of hydrophobia upon record in which there is said to be a total absence of fever. The same thing has been said of the plague. In both cases the supposed absence of fever is the effect of stimulus acting upon the blood-vessels with so much force as to suspend morbid action in them. By abstracting a part of this stimulus, a fever is excited which soon discovers itself in the pulse and on the skin, and frequently in pains in every part of the body. The dread of water, and the great sensibility of the system to cold air, are said to give a specific character to the hydrophobia; but the former symptom, it has been often seen, occurs in diseases from other causes, and the latter has been frequently observed in the yellow fever. It is no more extraordinary that a fever excited by the bite of a rabid animal should excite a dread of water, than that fevers from other causes should produce aversion from certain aliments, from light, and from sounds of all kinds; nor is it any more a departure from the known laws of stimulants, that the saliva of a mad dog should affect the fauces, than that mercury should affect the salivary glands. Both stimuli appear to act in a specific manner.

2. The hydrophobia partakes of the character of a malignant fever in appearing at different intervals

Intervals from the time in which the infection is received into the body. These intervals are from one day to five or six months. The small pox shews itself in intervals from 8 to 20 days, and the plague and yellow fever from the moment in which the contagion is inhaled, to nearly the same distance of time. This latitude in the periods at which infectious and contagious matters are brought into action in the body, must be resolved into the influence which the season of the year, the habits of the patients, and the passion of fear have upon them.

Where the interval between the time of being bitten, and the appearance of a dread of water, exceeds five or six months, it is probable it may be occasioned by a disease derived from another cause. Such a person is predisposed in common with other people to all the diseases of which the hydrophobia is a symptom. The recollection of the poisonous wound he has received, and its usual consequences, is seldom absent from his mind for months or years. A fever, or an affection of his nerves from their most common causes, cannot fail of exciting in him apprehensions of the disease which usually follows the accident to which he has been exposed. His fears are then let loose upon his system, and produce in a short time a dread of
water

water which appears to be wholly unconnected with the bite of a rabid animal. Similar instances of the effects of fear upon the human body are to be met with in books of medicine. The pains produced by fear acting upon the imagination in supposed venereal infections, are as real and severe as they are in the worst state of that disease.

3. Blood drawn in the hydrophobia exhibits the same appearances which have been remarked in malignant fevers. In Mr. Bellamy, the gentleman whose case is so minutely related by Dr. Fothergill, the blood discovered with "slight traces of size, *serum* remarkably *yellow*." It was uncommonly fizy in a boy of Mr. George Oakley's whom I saw, and bled for the first time, on the fourth day of his disease in the beginning of the year 1797. His pulse imparted to the fingers the same kind of quick and tense stroke which is common in the open forms of the yellow fever. He died in convulsions the next day. He had been bitten by a mad dog on one of his temples, three weeks before he discovered any signs of indisposition.

4. The hydrophobia accords exactly with malignant fevers in its duration. It generally terminates in death, according to its violence, and the habit of the patient on the first, second, third, fourth

or fifth day, from the time of its attack, and with the same symptoms which attend the last stage of malignant fevers.

5. The body after death, from the hydrophobia, putrefies with the same rapidity, that it does after death from a malignant fever in which no depletion has been used.

6. Dissections of bodies which have died of the hydrophobia, exhibit the same appearances which are observed in the bodies of persons who have perished of malignant fevers. These appearances, according to Morgagni and Sauvage,* are marks of inflammation in the throat, œsophagus, brain, stomach, liver, and bowels. Effusions of water, and congestions of blood in the brain, large quantities of dark coloured or black bile in the gall-bladder and stomach—mortifications in the bowels and bladder—livid spots on the surface of the body—and above all, the arteries filled with fluid blood, and the veins nearly empty. I am aware that two cases of death from hydrophobia, are related by Dr. Vaughan, in which no appearance of disease was discovered by dissection in any part of the body. Similar appearances have occasionally been met with
in

* *Bibliothèque Choisie de Médecine*, tome xv. p. 210.

in persons who have died of malignant fevers. I have explained them in my lectures by calling the attention of my pupils to what constituted a disease. It is morbid action. Now this action is often so violent as to prevent inflammation.* We err therefore when we place disease in inflammation, for it is one of its primary effects only, and hence we observe it does not take place in many instances in malignant fevers until the arteries are so far relaxed by two or three bleedings as to be able to relieve themselves by effusing red blood into serous vessels, and thus to produce that error loci which I have elsewhere† supposed to be essential to inflammation. The existence of this grade of action in the arteries may always be known by the presence of fizy blood, and by the more obvious and common symptoms of fever.

In

* In the 6th volume of the Medical Observations and Inquiries, there is an account of a dissection of a person who had been destroyed by taking opium. "No morbid appearance (says Mr. Whateley, the surgeon who opened the body) was found in any part of the body, except that the villous coat of the stomach was very slightly inflamed." The stimulus of the opium in this case either produced an action which transcended inflammation, or destroyed action altogether by its immense force, by which means the more common morbid appearances which follow disease in a dead body could not take place.

† Medical Inquiries and Observations, vol. iv.

In addition to the explanation which has been given of the term disease, and of the difference between it and inflammation, I have designated that deranged state of any part of the body which succeeds disease, whether it be inflammation, obstruction, effusion, or gangrene, by the name of *disorder*. To render this division of causes and effects in pathology, more simple and intelligible, it is necessary to remark further, that they do not always exist alone and unconnected with each other. Some remains of predisposing debility occasionally cleave to disease, and disorders are sometimes formed before the morbid actions of disease have completely spent themselves. Thus we see cold feet from debility, with the signs of violent disease in the pulse in the yellow fever, and universal disease in the blood-vessels, with a fixed disorder from tubercles in the pulmonary consumption.

The remedies for hydrophobia, according to the principles I have endeavoured to establish, divide themselves naturally into two kinds.

I. Such as are proper to prevent the disease, after the infection of the rabid animal is received into the body.

II. Such as are proper to cure it when formed.

The

The first remedy under the first general head is, abstracting or destroying the virus, by cutting or burning out the wounded part, or by long and frequent effusions of water upon it agreeably to the advice of Dr. Haygarth, in order to wash the saliva from it. The small pox has been prevented, by cutting out the part in which the puncture was made in the arm with variolous matter. There is no reason why the same practice should not succeed, if used in time in the hydrophobia. Where it has failed of success, it has probably been used after the poison has contaminated the blood. The wound should be kept open and running for several months. In this way a servant girl who was bitten by the same cat that bit Mr. Bellamy, is supposed by Dr. Fothergill to have escaped the disease. Dr. Weston of Jamaica believes that he prevented the disease by the same means in two instances. Perhaps an advantage would arise from exciting a good deal of inflammation in the wound. We observe after inoculation, that the more inflamed the puncture becomes, and the greater the discharge from it, the less fever and eruption follow in the small pox.

A second preventive is a low diet, such as has been often used with success to mitigate the plague and yellow fever. The system in this case, bends beneath

neath the stimulus of the morbid saliva, and thus obviates or lessens its effects at a future day.

During the use of these means to prevent the disease, the utmost care should be taken to keep up our patient's spirits, by inspiring confidence in the remedies prescribed for him.

Mercury has been used in order to prevent the disease. There are many well attested cases upon record of persons who have been salivated after being bitten by mad animals in whom the disease did not shew itself, but there are an equal number of cases to be met with, in which even a salivation did not prevent it. From this it would seem probable, that the saliva did not infect in the cases in which the disease was supposed to have been prevented by the mercury. At the time calomel was used to prepare the body for the small pox, a salivation was often induced by it. The affection of the salivary glands in many instances lessened the number of pock, but I believe in no instance prevented the eruptive fever.

I shall say nothing here of the many other medicines which have been used to prevent the disease. No one of them has I believe done any more good, than

than the boasted specifics which have been used to eradicate the gout, or to procure old age. They appear to have derived their credit from some of the following circumstances accompanying the bite of the animal.

1. The animal may have been angry, but not diseased with a malignant fever such as I have described.

2. He may have been diseased, but not to such a degree as to have rendered his saliva infectious.

3. The saliva when infectious, may have been so washed off in passing through the patient's clothes, as not to have entered the wound made in the flesh.
And

4. There may have been no predisposition in the patient to receive the fever. This is often observed in persons exposed to the contagion of the plague, yellow fever, small pox, and to the infection of the itch, and the venereal disease.

The hydrophobia like the small pox generally comes on with some pain, and inflammation in the
part

part in which the infection was infused into the body, but to this remark, as in the small pox there are some exceptions. As soon as the disease discovers itself, whether by pain or inflammation in the wounded part, or by any of the symptoms formerly, the first remedy indicated is BLOOD-LETTING. All the facts which have been mentioned, relative to its cause, symptoms, and the appearances of the body after death, concur to enforce the use of the lancet in this disease. Its affinity to the plague and yellow fever in its force, is an additional argument in favor of that remedy. To be effectual, it should be used in the most liberal manner. The loss of 100 to 200 ounces of blood will probably be necessary in most cases to effect a cure. The pulse should govern the use of the lancet as in other states of fever, taking care not to be imposed upon by the absence of *frequency* in it, in the supposed absence of fever, and of *tension* in affections of the stomach, bowels and brain. This practice in the extent I have recommended it, is justified not only by the theory of the disease, but by its having been used with success in the following cases.

Dr. Nugent cured a woman by two copious bleedings, and afterwards by the use of sweating and cordial medicines.

Mr.

Mr. Wrightson was encouraged by Dr. Nugent's success to use the same remedies with the same happy issue in a boy of 15 years of age.*

Mr. Falconer, cured a young woman of the name of Hannah Moore by "a copious bleeding," and another depleting remedy to be mentioned hereafter.†

Mr. Poupart cured a woman by bleeding until she fainted, and Mr. Berger gives an account of a number of persons being bitten by a rabid animal all of whom died, except two who were saved by bleeding.‡

Dr. Marillac has favoured me with the history of a case of hydrophobia from the bite of a mad dog, in which copious, and repeated bleedings directed by Dr. Le Compt in France in the year 1786, performed a perfect cure in five weeks.—The bleedings were aided by another medicine to be mentioned in its proper place.

In the 40th volume of the Transactions of the Royal Society of London, there is an account of
a man

* Medical Transactions, vol. ii. p. 192.

† Ditto, p. 222.

‡ Bibliotheque Choisie de Medecine. Tome xv. p. 212.

a man being cured of hydrophobia by Dr. Hartley by the loss of 120 ounces of blood.

Dr. Tilton cured this disease in a woman in the Delaware state by very copious bleeding. The remedy was suggested to the Doctor by an account taken from a London Magazine of a dreadful hydrophobia being cured by an accidental and profuse hæmorrhage from the temporal artery.*

A case is related by Dr. Innes,† of the loss of 116 ounces of blood in seven days having cured this disease. In the patient who was the subject of this cure, the bleeding was used in the most depressed, and apparently weak state of the pulse. It rose constantly with the loss of blood.

The two last of the above cases were said to be of a spontaneous nature, but the morbid actions were exactly the same in both patients with those which are derived from the bite of a rabid animal. There is but one remote cause of disease, and that is stimulus, and it is of no consequence in the disease now under consideration, whether the dread of water be the effect of the saliva of a rabid animal

* Medical Essays of Edinburgh, vol. i. p. 226.

† Medical Commentaries, vol. iii. p. 496.

mal acting upon the fauces, or of a morbid excitement determined to those parts by any other stimulus. The inflammation of the stomach, depends upon the same kind of morbid action, whether it be produced by the contagion of the yellow fever, or the usual remote and exciting causes of the gout. An apoplexy is the same disease when it arises from a contusion by external violence, that it is when it arises spontaneously from the congestion of blood, or water in the brain. A dropsy from obstructions in the liver induced by strong drink, does not differ in its proximate cause from the dropsy brought on by the obstructions in the same viscus which are left by a neglected, or half cured bilious fever. These remarks are of extensive application, and if duly attended to, would deliver us from a mass of error which has been accumulating for ages in medicine; I mean the nomenclature of diseases from their remote causes. It is the most offensive and injurious part of the rubbish of our Science.

I grant that bleeding has been used in some instances in hydrophobia without effect, but in all such cases, it was probably used out of time, or in too sparing a manner. The credit of this remedy has suffered in many other diseases from the same causes. I beg it may not be tried in this disease,
by

by any physician who has not renounced our modern systems of nosology, and adopted in their utmost extent the principles, and practice of Botallus and Sydenham in the treatment of malignant fevers.

Before I quit the subject of blood-letting in hydrophobia, I have to add, that it has been used with success in two instances in dogs that had exhibited all the usual symptoms of what has been called madness. In one case, blood was drawn by cutting off the tail, in the other, by cutting off the ears of the diseased animal. I mention these facts with pleasure, not only because they serve to support the theory and practice which I have endeavoured to establish in this disease, but because they will render it unnecessary to destroy the life of a useful and affectionate animal in order to prevent his spreading it. By curing it in a dog by means of bleeding, we moreover beget confidence in the same remedy in persons who have been bitten by him, and thus lessen the force of the disease, by preventing the operation of fear upon the system.

2. Purges, and glysters have been found useful in the hydrophobia. They discharge bile which is frequently vitiated, and reduce morbid action in the stomach

stomach and blood-vessels. Dr. Coste ascribes the cure of a young woman in a convent wholly to glysters given five or six times every day.

3. Sweating after bleeding completed the cure of the boy whose case is mentioned by Mr. Wrightson. Dr. Baumgarten speaks highly of this mode of depleting, and says further, that it has never been cured “but by evacuations of some kind.”

4. All the advantages which attend a salivation in common malignant fevers, are to be expected from it in the hydrophobia. It aided blood-letting in two persons who were cured by Mr. Falconer and Dr. Le Compt.

There are several cases upon record in which musk and opium have afforded evident relief in this disease.

A physician in Virginia cured it by large doses of bark and wine. I have no doubt of the efficacy of these remedies when the disease is attended with a moderate or feeble morbid action in the system, for I take it for granted, it resembles malignant fevers from other causes in appearing in different grades of force. In its more violent and common form, stimulants of all kinds must do harm, unless they are
of

of such a nature, and exhibited in such quantities, as to exceed in their force the stimulus of the disease, but this is not to be expected, more especially as the stomach is for the most part so irritable as sometimes to reject the mildest aliments as well as the most gentle medicines.

After the morbid actions in the system have been weakened, tonic remedies would probably be useful in accelerating the cure.

Blisters, and stimulating cataplasms applied to the feet might probably be used with the same advantage in the declining state of the disease, that they have been used in the same stage of other malignant fevers.

The cold bath, also long immersion in cold water, have been frequently used in this disease. The former aided the lancet in the cure of the man whose case is related by Dr. Hartley. There can be no objection to the cold water in either of the above forms, provided no dread is excited by it in the mind of the patient.

The reader will perceive here that I have deserted an opinion at which I hinted in my observations up-

on

on the cause and cure of the tetanus.* I there supposed the hydrophobia to depend upon debility. This debility I have since been led to consider as partial, depending upon abstraction of excitement from some, and a morbid accumulation of it in other parts of the body. In the former, it is of a direct, in the latter, it is of an indirect nature. The preternatural excitement predominates so far in most cases of hydrophobia over direct weakness, that depleting remedies promise more speedily and safely to equalize, and render it natural, than medicines of an opposite character.

In the treatment of those cases of hydrophobia which are not derived from the bite of a rabid animal, regard should always be had to its remote and exciting causes, so as to accommodate the remedies to them. I shall only mention in the history of a case, the remedy for that state of hydrophobia which arises from fear.

A clergyman in a neighbouring state lately visited one of his parishioners who was hastening to the grave with the hydrophobia from the bite of a mad dog. In conversing with him, he inadvertently took up a pipe of tobacco which the distracted and dying man had just laid down, and put it into
his

* Medical Inquiries and Observations vol. i.

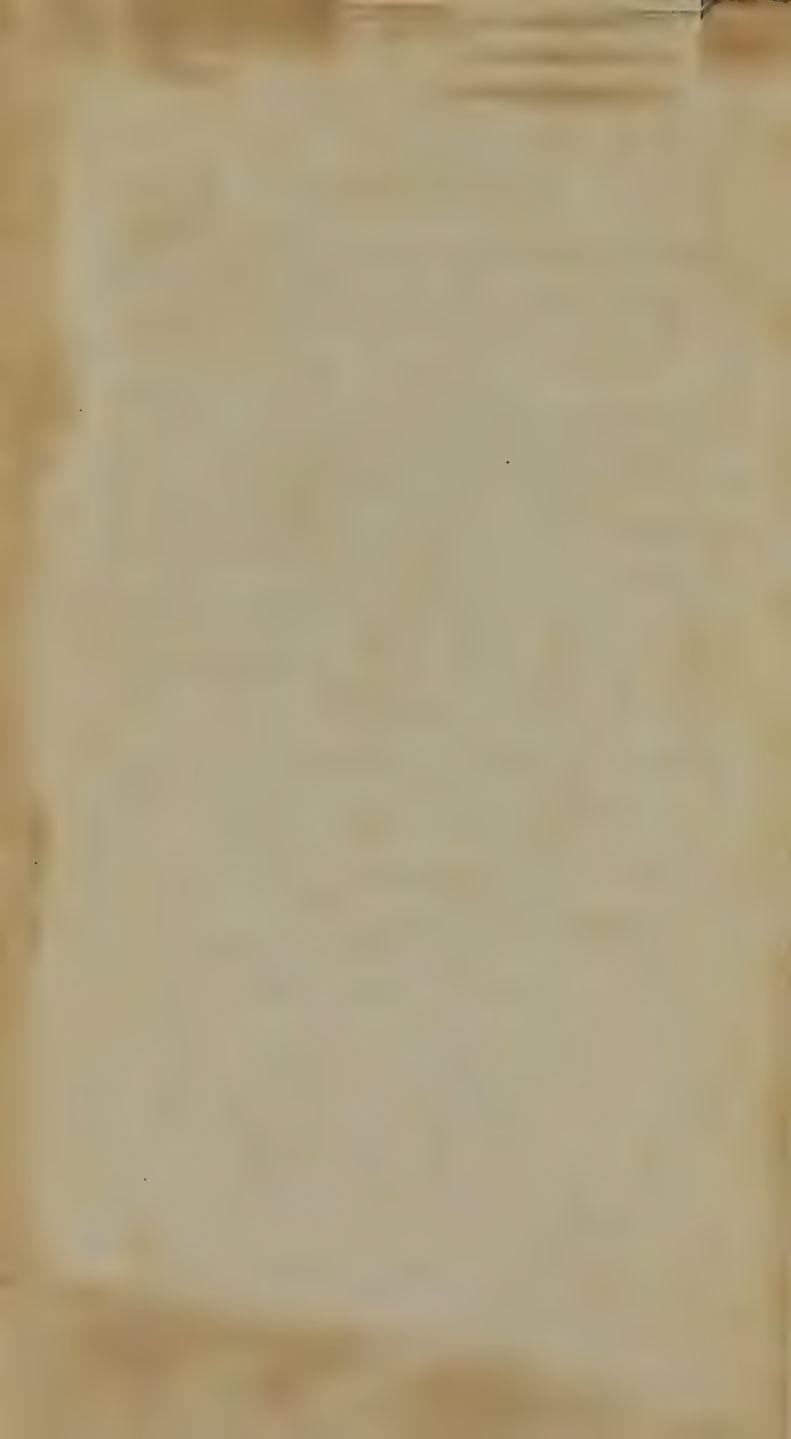
his mouth. When he came home, he recollected this incident. The thoughts of it filled him with terror, and he was soon afterwards affected with a difficulty of swallowing and dread of water. The elders of his church were sent for to console him. A physician was likewise sent for, who took a part in the conversation of his patient with his friends. His opinions however upon the subjects on which they conversed, which were of a religious nature, were so offensive to the clergyman, that he was thrown into a passion in hearing and refuting them, by which means his hydrophobia was instantly cured. In this way the impulse of powerful emotions and passions often cure diseases of less force, both in the body and mind.

The imperfection of the present nomenclature of medicine has become the subject of general complaint. The mortality of the disease from the bite of a rabid animal, has been increased by its name. The terms hydrophobia and canine madness, convey ideas of the symptoms of the disease only, and of such of them too, as are by no means universal. If the theory I have delivered, and the practice I have recommended be just, it ought to be called the hydrophobic state of fever. This name associates it at once with all the other states of fever, and leads us to treat it with the remedies
which

which are proper in its kindred diseases, and to vary them constantly with the varying state of the system.

In reviewing what has been said of this disease, I dare not say that I have not been misled by the principles of fever which I have adopted; but if I have, I hope the reader will not be discouraged by my errors from using his reason in medicine. By contemplating those errors, he may perhaps avoid the shoals upon which I have been wrecked. In all his researches, let him ever remember that there is the same difference between the knowledge of a physician who prescribes for diseases as limited by genera and species, and of one who prescribes under the direction of just principles, that there is between the knowledge we obtain of the nature and extent of the sky, by viewing a few feet of it from the bottom of a well, and viewing from the top of a mountain, the whole canopy of heaven.

F I N I S.





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